icountLaserCM20

Fluid Condition Monitoring

Portable Particle Counter

A 2-minute contamination test procedure:

A portable particle counter designed to be used in the field

icountLCM20 is a proven answer to fluid system contamination monitoring offering a 2-minute test procedure. Multi-standard ISO and NAS cleanliness reporting, data entry, data graphing and integral printing are all standard on this world proven contamination monitor.

Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

Product Features:

- icountLCM20 is a proven answer to fluid system contamination monitoring.
- 2-minute test procedure.
- Multi-standard ISO, NAS and AS4059 cleanliness reporting.
- Data entry, data graphing and integral printer.
- 420 bar rated maximum pressure.
- Supported by the offline UBS and online SPS accessories.

icountLaserCM20

Portable Particle Counter

Features & Benefits

Test time:	2 minutes
Particle counts:	MTD 4+, 6+, 14+, 21+, 38+ and 70+ microns(c) ACFTD 2+, 5+, 15+, 25+, 50+ and 100+ microns
International codes:	ISO 7-22, NAS 0-12
Data retrieval:	Memory access gives test search facility
Max. working pressure:	420 bar
Max. flow rate:	400 l/min when used with system 20 Sensors. Higher with single point sampler (see page 386)
Working conditions:	LaserCM will operate with the system working normally
Computer compatibility:	Interface via RS232 connection @ 9600 baud rate.

- Special 'diagnostics' are incorporated into the icountLaserCM microprocessor control to ensure effective testing.
- Routine contamination monitoring of oil systems with icountLaserCM saves time and saves money.
- Contamination monitoring is now possible during applicaton operation - icountLaserCM saves on production downtime.
- Data entry allows individual equipment test log details to be recorded.
- Data retrieval of test results from memory via hand set display.
- Automatic test cycle logging of up to 300 tests can be selected via hand set display.
- Totally portable, can be used as easily in the field as in the laboratory.
- Automatic calibration reminder.
- Instant, accurate results achieved with a 2 minute test cycle.
- Data entry allows individual equipment footprint record.
- Data graphing selectable via the integral printer.
- Auto 300-test cycle logging via LCD handset input.
- RS232 to USB computer interface.
- Limit level output to control peripheral equipment such as off-line filtration via internal relay limit switches.
- Auto-testing allows for the conducting of automatic sequencing tests on flushing systems for example.
- Optional bar code swipe wand to allow handset data loading.
- Worldwide service and technical support.
- Re-calibration - Annual certification by an approved Parker Service Centre.

Typical Applications

- Construction machinery
- Industrial plant
- Hydraulic equipment & system manufacturers
- Research & testing institutes
- Offshore & power generation
- Marine
- Military equipment applications

Parker LaserCM Portable Particle Counter.

With 20 years experience in manufacturing the world's best selling 'white light' portable particle counter – CM20, the progression to the icountLaserCM with its opto-mechanical, continuous wave single point source laser (SPSL) is both a natural and customer driven development.

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

Specification

Automatic Particle Counters (APC's), have been widely used for many years in condition monitoring of hydraulic fluids. However, it is only recently that APC's have become flexible enough to enable the instruments to be taken out of the laboratory and used on-line in order to obtain the most credible form of results.

Unusually, the move from fixed laboratory use, to portable field use has not been at the expense of accuracy or user flexibility, but has actually enabled the instruments to be used over a wider range of applications and situations.

The most common monitoring technique used in APC's is that of light obscuration or light blockage. Here, a focused light source is projected through a moving column of oil, (in which the contaminants being measured are contained), causing an image of the contaminant to be projected on to a photo diode cell, (changing light intensity to an electrical output).

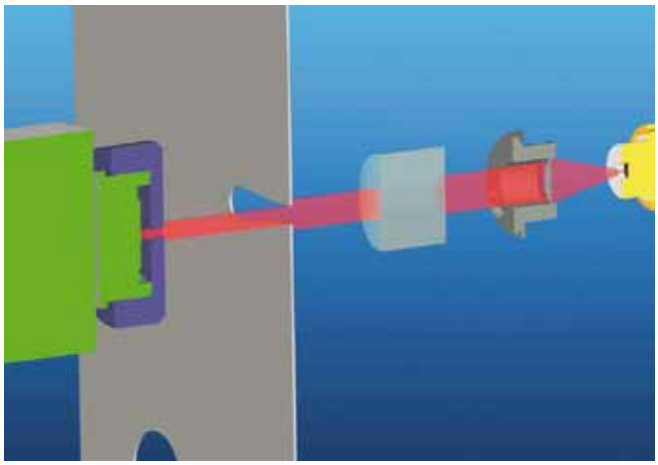
The electrical output of the photo diode cell will vary in accordance with the size of the particles contained in the column of oil; the larger the particle, the bigger the change in the photo diode electrical output.

On-line APC's must be able to test the oil sample at whatever cleanliness it is delivered to the machine. Parker therefore had to develop technology to ensure the on-line APC was able to test a sample without the conventional laboratory technique which requires dilution - a practice that would have been simply impossible with a portable unit.

By careful design and window sizing, gravimetric levels as high as 310mg of dirt per litre, (equivalent to up to 4 million particles >6 micron per 100 ml), can be achieved without making the instrument susceptible to counter saturation.

These high saturation point on-line APC's, whilst losing none of the accuracy of their laboratory counterparts, enable particle counting to be carried out quickly and accurately.

A focused light source is projected through a moving column of oil.



Laser Optical Sensing

Core technology that proves itself in icountLaserCM

The icountLaserCM portable particle counter features microprocessor controlled optical scanning for accurate contaminant measurement with a calibration range from ISO 7 to ISO 22 with no counter saturation.

How does icountLaserCM work?

- The particles are measured by a photo diode that converts light intensity to a voltage output which is recorded against time.
- As the particle moves across the window the amount of light lost is proportional to the size of the particle. This reduction in voltage is measured and recorded.
- This "voltage" lost relates directly to the area of the particle measured, is changed into a "positive" voltage and then in turn changed into a capacitance value.
- This value is counted and stored in the icountLaserCM computer in one of 6 channels according to particle size.
- Readouts are displayed on the hand-held LCD in the accepted ISO and NAS standards ready for hard copy printing or RS232 computer download.
- The on-board computer allows storage of up to 300 test results.

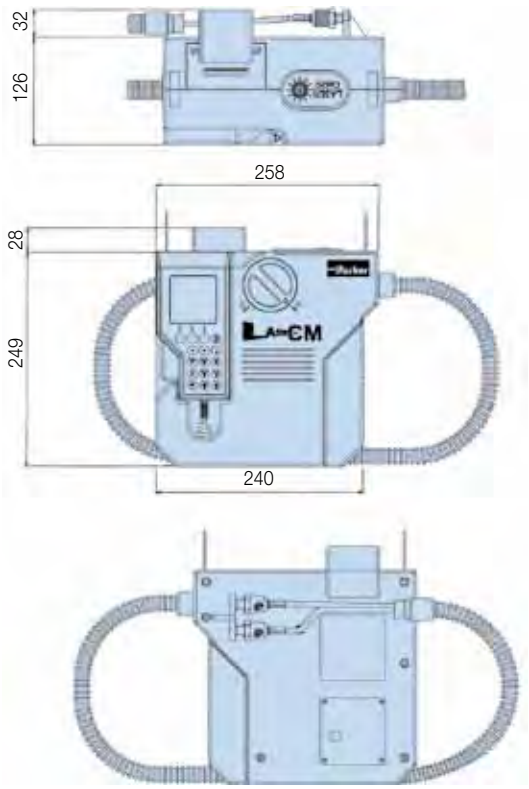
icountLaserCM20

Portable Particle Counter

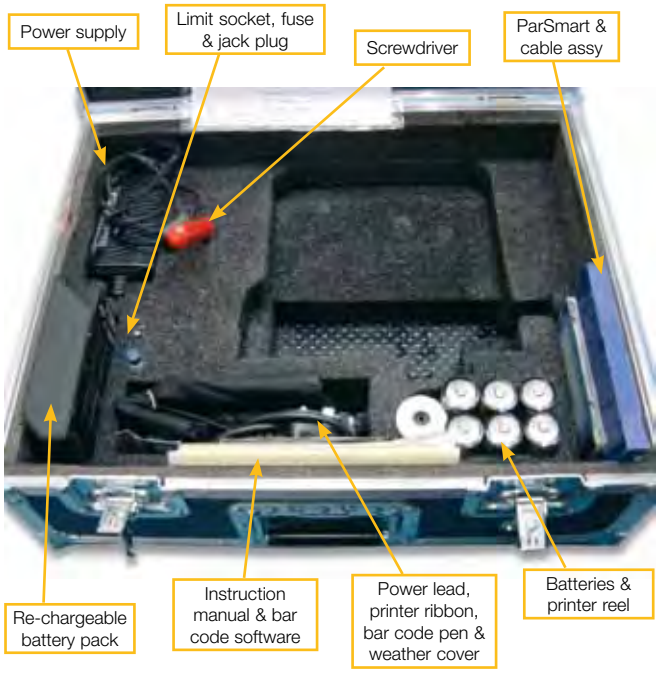
Specification

Description	LaserCM (LCM20 20 22)	LaserCM (LCM20 20 62)
ABS structural foam and injection moulded case	●	●
ABS handheld display	●	●
Mechanical composition – Brass, plated steel, stainless steel and aluminium	●	●
Fluorocarbon seals	●	
Perfluoroelastomer seals		●
Nylon hoses (kevlar braided microbore)	●	●
Stainless steel armoured hose ends	●	●
1.2m fluid connection hose	●	●
Rechargeable battery pack	●	●
12Vdc power supply	●	●
Fast blow fuse	●	●
Unique optical scanning system	●	●
Bonded glass optical window enclosed in SS plate	●	●
Micron channels analysis (Six)	●	●
Analysis range ISO 7 to 22 incl. (NAS 0 to 12)	●	●
32 character dot matrix LCD. Alpha numeric keypad	●	●
Data retrieval	●	●
Calibration to ISO standards*	●	●
Viscosity range 2 to 100 cSt. 500 cSt.with SPS	●	●
Operating temp.+5 to +80°C	●	●
Ambient temp.+5 to +40°C	●	●
2 minute test completion time	●	●
Memory store – 300 test memory	●	●
Battery operated 6 x 1.5 D cells	●	●
Phosphate Ester group compatibility		●
Mineral oil & petroleum based fluid compatibility	●	●
Up to 420 bar (6000 psi)	●	●
Integral 16 column printer	●	●
RS232 to USB computer interface	●	●
Astra board case weight – (Kg)	5	5
Unit weight – (Kg)	8	8
ParSmart software and cable link pack	●	●
Weather protector cover	●	
CE certified	●	●
Auto logging	●	●

*Note: In compliance with international standards, all Parker portable particle counters can meet the ISO Medium test dust standards. The icountLaserCM's, in addition to the complete range of Condition Monitoring products, are capable of achieving certification to ISO 4406:1999 and with traceability to ISO 11171 for SRM 2806, via ISO 11943.



Commissioning Kit


Power supply
Limit socket, fuse & jack plug
Screwdriver
ParSmart & cable assy
Re-chargeable battery pack
Instruction manual & bar code software
Power lead, printer ribbon, bar code pen & weather cover
Batteries & printer reel

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

Operation

Switch On

Start Test

Operating the Parker icountLaserCM is as simple as pressing the start button and turning the dial. The test procedure is automatic and in the case of the icountLaserCM takes no more than 2 minutes to complete.

icountLCM20 makes the difference in industry

Fully accredited to BS EN 60825:1992 and IEC 60825-1 (safety of laser products) Standards, accredited to USA Standards and achieving full ISO certification. icountLaserCM offers users advanced laser technology, a fast, dynamic and on-line 2 minute system test cycle. An icountLaserCM Aggressive Fluids model is also available, suitable for monitoring corrosive fluids such as phosphate ester based lubricants used in commercial aviation.

MTD calibration

icountLaserCM MTD Calibration variants are certified via a primary ISO 11171 calibrated automatic particle counter. All MTD Laser CM20's achieve ISO 4406:1999 criteria, via ISO 11943.

icountLCM20 Using SPS

Understanding MTD

ACFTD (Air Cleaner Fine Test Dust) was formatted in the 1960's, but is no longer being produced. The obsolescence of this dust has led to the adoption of a new dust MTD.

MTD (Medium Test Dust) having a particle size distribution close to ACFTD was selected as a replacement. However, MTD produced results somewhat different to ACFTD, so the NIST (National Institute of Standards & Technology) undertook a project to certify the particle size distribution of ISO MTD.

The result was particle sizes below 10µm were greater than previously measured.

Particles sizes reported based on NIST would be represented as µm (c), with "c" referring to "certified". Therefore the icountLCM20 reported sizes are as follows:

ACFTD	MTD
2µ	4µ (c)
5µ	6µ (c)
15µ	14µ (c)
25µ	21µ (c)
50µ	38µ (c)
100µ	70µ (c)

MTD offers true traceability, improved particle size accuracy and better batch to batch reproduction.

icountLaserCM20

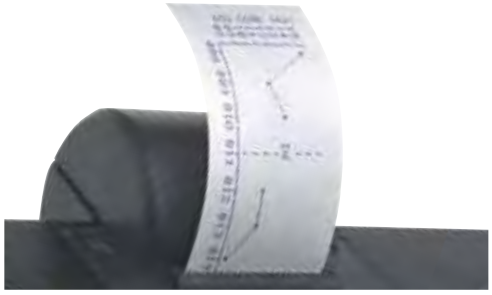
Portable Particle Counter

Why On-Site Fluid Contamination Monitoring?

- Certification of fluid cleanliness levels.
- Early warning instrument to help prevent catastrophic failure in critical systems.
- Immediate results with laboratory accuracy.
- To comply with customer cleanliness requirements and specifications.
- New equipment warranty compliance.
- New oil cleanliness testing.

Data Download Management

Dedicated software, provides the link between an icountLaserCM20 and the H_2Oil - Water in Oil monitor and your computer management system.



16-column printer for hard copy data. A feature of the icountLaserCM is the on-board printout data graphing option developed to support predictive maintenance procedures.

icountLaserCM Test

ON LINE TEST

TEST NUMBER 022

	D M Y
Date	04-03-10
Time	15-52
ISO:	20/15/09

Count / 100ml

>4µ (c)	820721
>6µ (c)	31564
>14µ (c)	314
>21µ (c)	64
>38µ (c)	14
>70µ (c)	0

NOTES

ISO 4406 - 1999

icountLaserCM Test

ON LINE TEST

TEST NUMBER 022

	D M Y
Date	04-03-10
Time	15-52
NAS CLASS:	7

Count / 100ml

4/6µ (c)	789157
6/14µ (c)	31250
NAS CLASS	7
14/21µ (c)	250
NAS CLASS	3
21/38µ (c)	50
NAS CLASS	3
38/70µ (c)	14
NAS CLASS	4
>70µ (c)	0
NAS CLASS	0

NOTES

Correlation to NAS 1638

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

Introducing the new icountLCM ‘Classic’

There is a new addition to the proven range – the icountLCM ‘Classic’. Only available from Parker, the ‘Classic’ retains all the technology that made the icountLaserCM one of the most accurate, reliable and popular portable particle counters available.

Our design engineers have re-configured the icountLaserCM specification in a way that has reduced our manufacturing costs. These savings have been passed onto icountLCM ‘Classic’ customers.

How have we done this?

Parker listened to our existing customers and then to the engineers and maintenance operatives to find out the features that make the icountLaserCM a unique predictive maintenance instrument.

Then, we removed peripheral items such as the aluminium case and all the accessories, so a customer receives the icountLCM, with a CD user guide, professionally and securely boxed. One thing that has not altered is the icountLCM accuracy and icountLCM reliability. Our in-house software engineers have re-configured the EPROM, removing Data programming, User ID, Automatic Testing, Data retrieval, Alarm level settings, the barcode pen and Graph printing functions to reduce costs still further without in any way reducing the efficiency of the icountLCM. The icountLCM ‘Classic’ remains an instrument to be proud of.

Ordering Information (icountLaserCM and ‘Classic’ icountLaserCM)

Standard products table

Part number	Supersedes	Description
LCM202022	LCM20.2022	icountLCM20 (MTD calibrated)
LCM202026	LCM20.2026	icountLCM20 ‘classic’ (MTD calibrated)
ACC6NE015	B84702	Printer roll x 5
ACC6NE014	P.843702	Printer ribbon
ACC6NE013	B84609	Re-chargeable battery pack
ACC6ND002	P849603	Weather protector cover
ACC6ND000	B84703	USB to RS232 Download Cable

Note 1: Part numbers featured with bold highlighted codes will ensure a ‘standard’ product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Product configurator

Model	Fluid type		Options	
LCM2020	**2**	Hydraulic mineral	**1**	icountLCM20 (ACFTD calibrated)
	6	Skydrol	**2**	icountLCM20 (MTD calibrated)
			5	icountLCM20 ‘classic’ (ACFTD calibrated)
			6	icountLCM20 ‘classic’ (MTD calibrated)
			7	icountLCM20 with CMP (ACFTD calibrated)
			8	icountLCM20 with CMP (MTD calibrated)

Note 1: Part numbers featured with bold highlighted codes will ensure a ‘standard’ product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.
Note 3: Option 7 and 8 with CMP (Case mounted pump).

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

Universal Bottle Sampler

Simple and efficient offline oil sampling

Clean and contamination free sampling

Ideal for batch oil sampling and laboratory testing

The UBS provides the dynamic link to portable particle and water counters. The UBS off-line sampler has microprocessor technology to recognise and adjust to the connecting monitor including the icountLCM20 and H_2Oil water in oil monitor.

Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

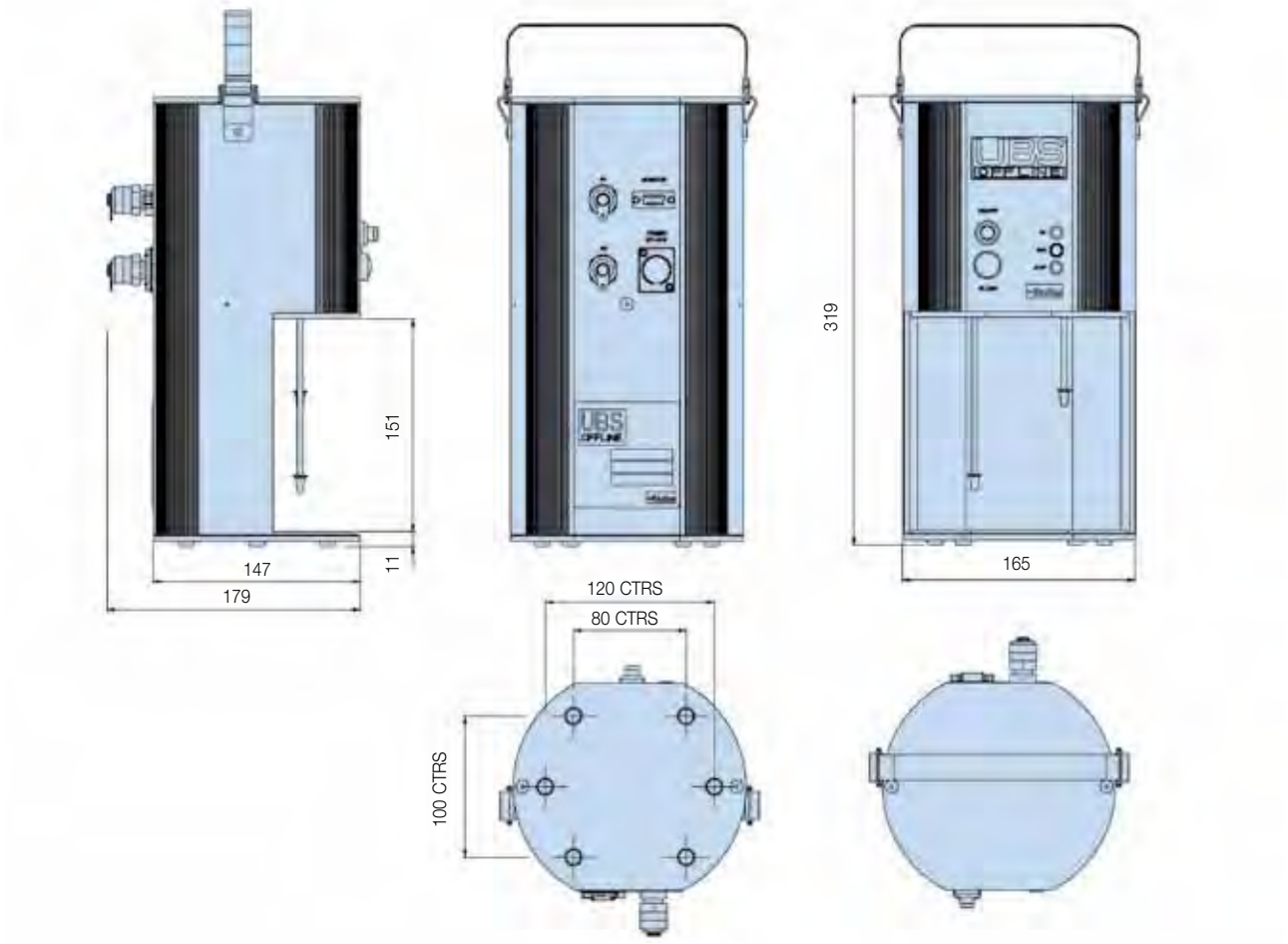
Product Features:

- Simple operation
- Efficient testing procedure
- Clean and contamination free sampling
- Available for both mineral based and aggressive fluids
- Further advances the LCM20's flexibility into laboratory bottle sampling environments
- Can accept various different sized bottles
- Minimal working parts
- Internal auto setting fuse for overload protection
- Simple maintenance procedures

Specification

Description	UBS offline
Viscosity range 2 to 250 cSt	●
Operating temp +5 to +80°C	●
Test time 2m15s / 4m15s (Flush 2m)	●
12 Vdc power supply	●
Extruded aluminium construction	●
Unit weight - (Kg)	4
Mineral oil and petroleum based compatibility	Fluorocarbon seal
Phosphate Ester group compatibility	EPDM seals
CE certified	●
Military approved	●
Manual operation	●
Bottle pack	●
De-gassing chamber	●
Manual	●
Sample tube pack	●
Interface cable to LCM20, H_2Oil etc.	●

Installation Details



Universal Bottle Sampler

Simple and efficient offline oil sampling

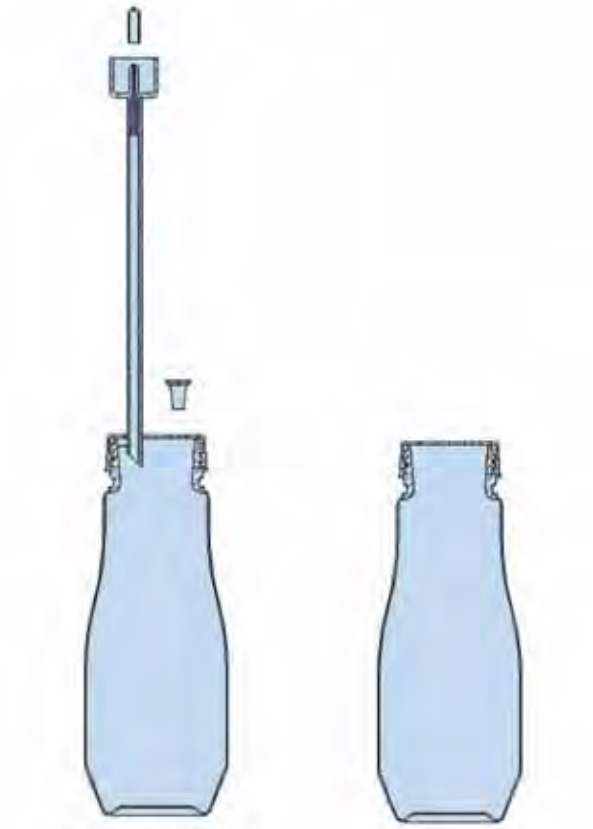
System Flow Rate

Samples are best taken from a point in the system where the flow is TURBULENT (Reynolds No. greater than 4000). The turbulent flow creates a mixing action. Where flow is streamline or LAMINAR, larger particulate may tend to settle toward the lower pipe surface and not be sampled.

System Condition Changes

Changes in the system operating condition, flow, temperature, pressure or vibration, can result in previously sedimented contaminant being retrained into the flowing oil. It is also possible that these changes may cause partially contaminated filter elements to shed particulate into the system. Samples should, therefore, be extracted when the system is in a steady state condition and the result less likely to be distorted by contaminant peaks.

There are a number of proprietary sampling valves available which adhere to good theoretical principles. However, they do tend to generate a level of precision and cost which is unnecessary for trend monitoring.



ACC6NW001 x 50 = ACC6NW002

ACC6NK001

Sampling points should enable extraction of a sample without changing the system's condition. Fine control needle valves are not desirable, as they have a tendency to silt up under some operating conditions, causing the distribution of contaminants in the fluid to be changed. The sampling port should be protected to maintain cleanliness and thoroughly flushed before collecting the sample for analysis. Allow sufficient airspace in the bottle to enable 80% fill.

Bottle Cleanliness

It is preferable that bottles have sealing screw caps and both parts are cleaned to a suitable level in accordance with ISO3722.

The bottle should not contain more than one tenth the number of particles per 100ml than are expected to be monitored. Standard Parker bottles ae supplied clean to ISO13/11 (NAS Class 4) and should not be used to accurately count oils cleaner than ISO 15/12 (NAS Class 6) although they may be used for "trend mlonitoring" at lower levels.

The bottle should remain capped until time of sample filling and re-capped immediately afterwards.

Sample Mixing

Sedimentation of contaminant in a sample will occur, the rate of which is dependent upon both fluid and particle characteristics.

Samples should be analysed, without delay, once agitated and de-glassed.

Ordering Information

Standard products table

Part number	Description
UBS9002	Universal bottle sampler (includes aluminium case and accessories)
UBS9003	Universal bottle sampler
UBS9004	Aggressive universal bottle sampler
UBS9005	Aggressive universal bottle sampler (Includes aluminium case and accessories)

Accessories

Part number	Supersedes	Description
ACC6NK001	B89907	Sample bottle pair with cap, without tube
ACC6NW001	B89911	Sample bottle pair with extraction hose
ACC6NW002	B89910	100 Sample bottle pack (50 x ACC6NW001)
ACC6NK002	S840054	UBS Power supply
ACC6NK003	S890005	UBS De-gassing chamber and pump
ACC6NK004	B89603	UBS De-gassing chamber only
ACC6NK005	B89902	Cable and adaptor

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Typical Applications

- Batch sampling
- Aircraft rig certification
- Oil research
- Laboratory testing
- Transfer line monitoring

Simple To Use UBS

The oil sample is drawn into the UBS Off-line where it is secured, free from further contamination, in a bottle together with a clean waste bottle by a peristaltic, self-priming pump. Simple operation and efficient testing are assured once the UBS Off-line is connected to any of the CM monitors, and powered up using it's own power source. The oil sample requires agitation and de-gassing before carrying out the contamination test. A de-gassing kit option is available and consists of a vacuum chamber and pump. (Standard with UBS9002)

Notes

icountBS
Bottle Sampler

In the lab or in the field monitoring

Parker Filtration's icountBS is a unique and complete solution providing customers with laboratory fluid bottle sampling using proven on-board, laser based technology. icountBS is a next generation product from Parker's fluid particle analysis and monitoring programme and provides an effective alternative to external laboratory services.

Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

Product Features:

- Quick sample bottle analysis with variable test time options from 15 seconds and volume capacities from 10ml.
- Repeatable and re-producible result performance to ISO4406:1999 and NAS1638 particle count distributions.
- On-board compressor and 'shop' air capability.
- Environmentally controlled front-loading bottle chamber.
- Design concept allowing for portability. DC and rechargeable battery pack power option built in.
- CE compliant
- Fluid resistant touch type screen panel.
- On-board thermal printer.
- 500 test memory (fully downloadable).

The complete solution - industrial design combined with state of the art technology

The icountBS - Bottle Sampler from Parker with its innovative industrial design has been developed for customers looking for state of the art technology, attention to detail and the compactness of a permanent laboratory particle analysis model.

Combine this with on-board, laser based, leading edge technology to bring to all industries a truly revolutionary Particle Counter. The icountBS is a product from the next generation of Parker's fluid particle analysis and monitoring innovations.

The IBS features an easy to use interactive touch screen, environmentally controlled pressurized bottle chamber for air bubble suppression via an internal compressor pump, with automated door locking mechanism, sample tube cleaning sleeve minimizing contamination cross over, and an internal thermal printer.

The icountBS benefits from Parkers knowledge and experience of providing bottle analysis equipment to the market over the last 20 years.

This experience comes from selling market leading innovative solutions and by having front line condition monitoring products for all sectors of fluid analysis opportunities. The unit was at every stage developed with the customers voice in mind.

icountBS - Bottle Sampler Features & Benefits

- Quick sample bottle analysis with variable test time options from 15 seconds and volume capacities from 10ml.
- Repeatable and re-producible result performance to ISO4406:1999 and NAS1638 particle count distributions. For other calibration standards consult Parker CMC.
- On-board compressor and ‘shop’ air capability.
- Design concept allowing for portability. DC and rechargeable battery pack power options built in.
- Cost-effective and economical alternative solution to external laboratory services.
- CE compliant.
- Fluid resistant touch type screen panel.
- Sample tube self cleaning sleeve minimizing contamination cross over.
- Internal thermal printer.

Analysing the test results

I have my results what do I do next?

Solid contaminants in fluid power systems vary in size, shape, form and quantity. The most harmful contaminants are normally between 6 microns and 14 microns. The ISO code is the preferred method of reporting quantity of contaminants.

The ISO code number corresponds to contamination levels relating to three sizes.

The first scale number represents the number of particles larger than 4µm(c) per 100 milliliters of fluid, the second number for particles larger than 6 µm(c) per 100 milliliters of fluid and the third number for particles larger than 14 µm(c) per 100 milliliters of fluid.

For example: An ISO code 20/18/14 indicates that there are between 500,000 and 1,000,000 particles larger than 4µm(c), and between 130,000 and 250,000 particles larger than 6 µm(c), and between 4,000 and 8,000 particles larger than 14µm(c).

icountBS reporting and data

In addition to the 'raw data' printout of ISO compliant data from the icountBS's on-board printer, icount Mini-lab offers the user the advantage of a 2-page report providing hard copy data on ISO/ NAS individual counts and average contamination results.

FACT *Did you know the best human eye can only see particles above 40µ(c)?

Component Cleanliness Guide

Suggested acceptable contamination levels for typical hydraulic systems

Target contamination class to ISO 4406: 1999			Suggested maximum particle level			Sensitivity	Type of system	Typical components
4 µm(c)	6 µm(c)	14 µm(c)	4 µm(c)	6 µm(c)	14 µm(c)			
15	13	9	16,000	4,000	250	Super critical	Silt-sensitive control systems with very high reliability. Laboratory or aerospace	High performance servo valves
17	15	11	64,000	16,000	1,000	Critical	High performance servo and high pressure long life systems, e.g. aircraft, machine tools etc.	Industrial servo valves
18	16	13	130,000	32,000	4,000	Very important	High quality reliable systems. General machine requirements	Piston pumps, proportional valves, compensated flow controls
20	18	14	500,000	130,000	8,000	Important	General machinery and mobile systems. Medium pressure, medium capacity	Vane pumps, spool valves
21	19	15	1,000,000	250,000	16,000	Average	Low pressure heavy industrial systems, or applications where long life is not critical	Gear pumps, manual and poppet valves, cylinders
23	21	17	4,000,000	1,000,000	64,000	Main protection	Low pressure systems with large clearances	Ram pumps

Notes:

Tables have been generated by organisations in various industries.

Some of the tables are defined in cumulative counts, e.g. '>6µm' and others are represented as differential counts e.g. '6-14µm'.

All µm(c) refer to MTD distributions. All µm references will refer to ACFTD distributions.

All standards are in counts per 100ml and provide easy methods for converting particle counts into limits that are simple to interpret. By noting the requirements of the standard, particle counts can be accurately converted to contamination levels.

icountBS Product Specification

Principle of Operation	Laser based light obscuration
Calibration Dust	MTD or ACFTD
Dimensions	H=530 x W=190 (210 Door clearance) x D=410 (mm) H=20.9in x W=7.5in x 16.9in
Weight	16Kg
Mechanical Composition	Stainless steel 316, plated mild steel and aluminium
Plastics Composition	Precision polyurethane RIM mouldings and ABS plastic
Environmental Operating Temperature (Fully Tested)	+5°C to + 60°C (41°F to 140°F)
Operating % RH range	20 – 85% (Tested at 30°C, no condensation)
Storage Temperature	-40°C to + 90°C (–40°F to 194°F)
Storage RH range	10 – 90% (Tested at 30°C (86°F), no condensation)
Certification	CE (EMC-RFI) compliant
Analysis Range	ISO 7 to 21, NAS 0 to 12
Contamination Standards	MTD - ISO 4406:1999 & NAS 1638 ACFTD - ISO 4406:1987, ISO 4406:1991 & NAS 1638 For further contamination standards consult Parker CMC
Calibration Standard	ISO MTD and ACFTD calibration to traceable ISO Standards. (Contact Parker CMC for further details).
Fluid Management	Maximum single sample = 100ml Minimum single sample = 10ml
Possible Test Configurations	User selectable from single test up to 5 tests per run (eg.1x100ml up to 5 x50ml per run)
Pre-Test Flush Volume	Minimum = 10ml, Maximum = 100ml
Viscosity Range	1-400 cSt
Fluid Compatibility	Mineral oils, petroleum and hydrocarbon based fluids (consult manufacturer) and some esters (consult manufacturer).
Sample Bottle Size	Non specific. Max size = Ø75 (2.95in) x (H) 150 mm (5.9in). Max Volume = 250ml
Memory Storage	500 Tests (capacity warning after 450 tests)
Output Display	Backlight 256 Colour STN Transmissive
Output Display Resolution	320 x 3(R.G.B)(H) x 240(W) dots
Display Active Area	115(H) x 86(W) mm 4.5in (H) x 3.4 in (W)
Data Input	Via icon driven oil resistive touch screen
Printer	Thermal dot-line printing
Printer Paper	Ø50mm – (57mm x 25mm) Ø 1.97in – (2.24in x 0.98in)
Test Certification	Fully traceable Calibration & Certificate of Conformity
Power Supply	12Vdc@ 6.60Amps, 80 watts max.
Battery Power	2 Hours (recommended to be fully charged every 3 months)
Battery Stand-By Time	1 month (then 1 hour of operation)
Battery Fuse	6.3 Amps (anti-surge)
Air pressure Source	3.5 bar (51 PSI) internal Mini-compressor or 7 Bar (101 PSI) shop air

Ordering Information

Consult Parker Filtrations Condition Monitoring Business Unit for icountBS and MiniLab.

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

Introducing the icount ‘Mini-lab’ – The effective way of utilising your icountBS

How clean is your hydraulic system?

Contamination Control is only an oil sample away with our easy, 3-Step fluid analysis service.

Step 1 **Obtain your sample of hydraulic oil.**

Step 2 **Take the 2 minute off-line oil sample test.**

Step 3 **View your results and run a report immediately.**

Kit comprises: icountBS. Flat-pack trolley. 30 sample bottles. Optional Laptop/software/printer and cables

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

CMC Service Centres

Global Support for CMC products

Improving aftermarket support for condition monitoring products.

Parker's fluid Condition Monitoring Service Centres can be found currently in 10 locations around the globe, on almost every continent. Our experience and expertise in fluid condition monitoring and analysis ensure we are THE authority within our industry.

Each location offers first class aftermarket support for Condition Monitoring products, giving:

- Direct Contact for End Users.
- Quick and confident technical support to assist you in maintaining an efficient and trouble free monitoring process.
- Faster turn around for annual calibration verification, resulting in the product not having to come back to the country of manufacture.

Parker also offers on the icountACM20 laboratory unit:

- A six monthly field use verification sample for confident product performance.
- An extended two year warranty, giving confidence in product readiness.

Visit **www.parkerhfde.com/condition/service/** to find your nearest location and contact details.

Parker returns policy and calibration procedure

Each product returned to an approved Parker Service Centre will have the following:

- **A visual inspection of all case components.**

If any components from the support case require replacing, please notify the Service Centre at the time of return.

Parker holds no responsibility for case contents and will only replace parts if required or deemed necessary.

- **An external inspection of the complete assembly.**

The particle counter will be thoroughly checked for signs of damage or misuse and if necessary an estimate of the cost of repair will be provided.

- **Full functionality test.**

This includes visual inspection of internal parts and their operation.

- **Replacement of any defective or damaged parts.**

No corrective work will be carried out on the product returned without the authorization from the end user.

- **Recalibration (with a Certificate valid for 12 months).**

Each unit is calibrated to the relevant ISO standards.

The recalibration procedure does not include the replacement of any damaged components that have been deemed defective through negligence or misuse.

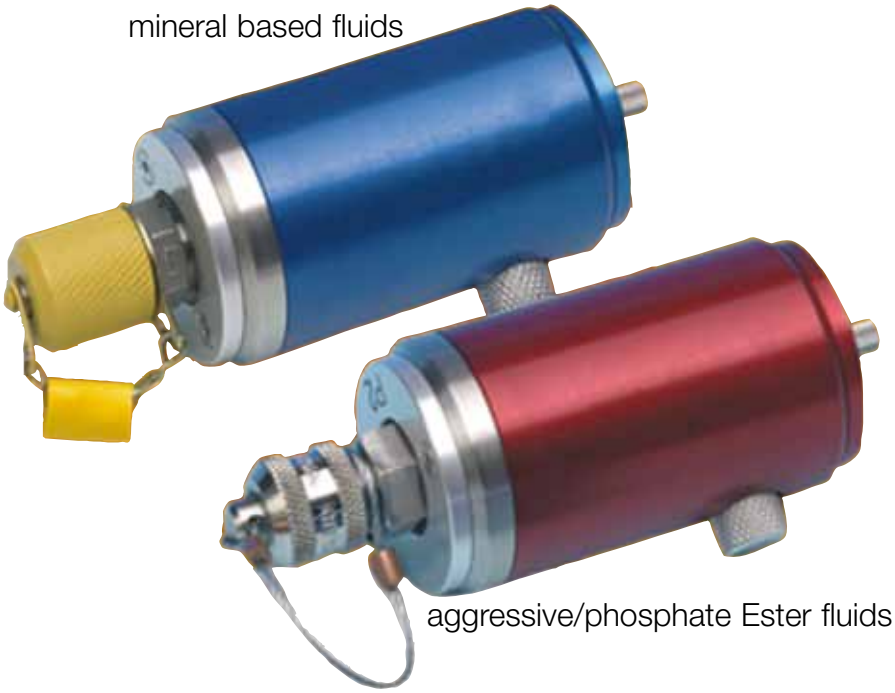
Single Point Sampler

Online Sampling

Lightweight and compact connection

The effective link to ensure accurate contamination monitoring

The SPS (Single Point Sampler) is a lightweight, compact and easy to use online sampling unit that connects an icountLCM20 or H_2Oil to a single pressure test point in a fluid system. Suitable for use with mineral and biodegradable oils, petroleum based and phosphate ester fluids, the SPS offers fingertip operated control even at high pressures - 420 bar (6000 PSI) rated maximum pressure.



Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

Product Features:

- Lightweight, compact and easy to use online sampling unit.
- Connects an icountLCM20 or H_2Oil to a single pressure test point in a fluid system.
- Suitable for use with mineral and biodegradable oils, petroleum based and phosphate ester fluids.
- 420 bar (6000 PSI) rated maximum pressure

Single Point Sampler

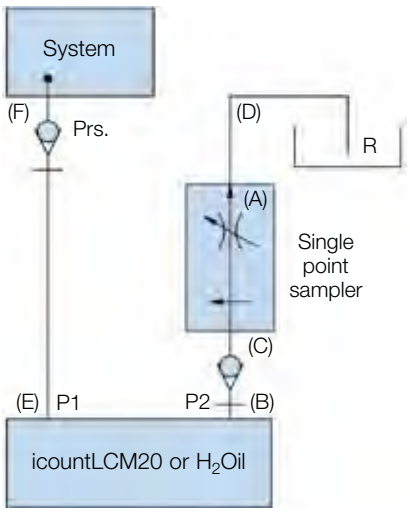
Online Sampling

Features & Benefits

The Single Point Sampler provides a means to connect an icountLCM20 or H_2Oil to a single pressure test point and balance the differential pressure across the system, to provide a controlled flow of oil into the icountLCM20 or H_2Oil and away into a waste oil receptacle.

- Lightweight, compact and easy to use design
- Fingertip operated control valve even at high pressures
- 420 bar (6,000PSI) rated
- Facilitates testing from large diameter pipework
- Capability to test up to 500cSt viscosity oils (pressure permitting)
- Pressure compensated flow control mechanism
- Possible to control the valve with the same level of accuracy whether the device is operating at high or low pressure
- Capable of allowing a flow rate in excess of 10ml/min when operating at any viscosity within the product specification
- Suitable for fluid temperatures from +5°C to +80°C (+41°F to +176°F)
- High quality polished finish. (stainless steel/ aircraft grade aluminium)
- Capable of working with an icountLCM20 or H_2Oil connected into a system via the standard one metre extension hose kit
- Suitable for use with mineral and biodegradable oils, petroleum based and phosphate ester fluids
- Phosphate ester version utilises the $^5/_8$" BSF HSP style fitting
- Designed so that it meets the lowest possible level of magnetic permeability
- Supplied with accessories kit
- It will maintain the set flow rate between upper and lower limits within a 100 bar inline pressure change
- Clear product identification to ensure that it is connected correctly. (i.e. downstream of the icountLCM20 or H_2Oil)

Connection Instructions



1. Ensure valve is closed (A).
2. Connect P2 on icountLCM20 or H_2Oil (B) to P2 on Single Point Sampler (SPS) (C).
3. Connect drain line on SPS (D).
4. Connect P1 of icountLCM20 or H_2Oil (E) to the system (F).
5. The SPS is ready to operate.
6. Open valve (A) slowly until the oil flows continuously from the drainline (D) into a reservoir or recepticale (R).
7. Switch on monitor and begin testing.

icountLCM20 Only

Carry out flow test as shown in the manual. If test is showing below Δt 3.6°C then carry out test as normal. If, however, test is above Δt 3.6°C then increase oil flow by turning valve (A) anticlockwise and then carry out flow test. Do this until Δt is below 3.6°C and carry out test as normal once achieved.

WARNING! Ensure that SPS valve is closed and icountLCM20 or H_2Oil is connected to the SPS BEFORE connection to system.

Specification

Fluid compatibility:
Mineral oil and petroleum based fluids (standard version).
Aggressive fluid (dual seal version) for other fluids consult Parker Hannifin.

Seals:
Fluorocarbon or Perfluoroelastomer.

Maximum working pressure:
420 bar (6000 psi).

Weight:
500 grams max. (Not including hoses).

Packaging standard:
Cardboard carton (military usage - plastic carry case).

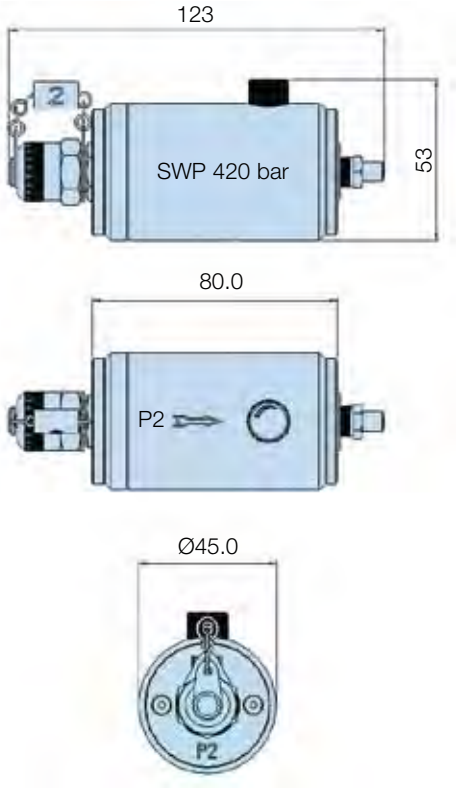
Unit size:
45mm dia x 123mm long. (1.77in dia x 4.8in long).

System connection:
Standard - M16 (G1/4" BSP) with cap,
Aggressive - 5/8" BSF HSP.

Operating temp range:
+5°C to +80°C (+41°F to +176°F).

Storage temperature range:
-26°C to +80°C (-15°F to +176°F).

Construction:
Body: Aluminium BS 1470 – pressurised end stainless steel.
Finish: Anodised blue (standard version) - Mineral Oil.
Anodised red (dual seal version) - Aggressive Oil.



Ordering Information

Standard products table

Part number	Supersedes	Description
SPS2021	SPS.2021	Single point sampler (Mineral Oil fluids)
SPS2061	SPS.2061	Single point sampler (Aggressive/phosphate ester fluids
ACC6NW003	B84784	Waste bottle (Universal)
ACC6NH001	B84224	Extension hose/coupling (Mineral fluids)
ACC6NH002	B84225	Extension hose/coupling (Aggressive/phosphate ester fluids)
ACC6NH003	B84788	Waste hose (Mineral Oil)
ACC6NH004	B84787	Waste hose (Aggressive/phosphate ester fluids)

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

System20

Inline Sensors & Monitors

A proven method of accurate condition monitoring of a system

Effective inline sensors and monitors for fluid condition monitoring

Inline System20 sensors and hand-held monitors designed to give accurate and instant fluid system readings of flow, pressure and temperature. 3 sizes of inline System20 sensor for pressures up to 420 bar, an analogue monitor that utilizes 3 day-glow gauges with protective cover. EM20 electronic monitor with full digital display and 300 test memory.

Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

Product Features:

- 2 types of System20 sensor are available.
  STI=industrial with reverse flow capability.
  STS=Mobile without reverse flow capability.
- 3 sizes of industrial inline System20 sensor for pressures up to 420 bar. 2 sizes of Mobile System20 sensor.
- Analogue monitor utilizes 3 day-glow gauges with protective cover.
- EM20 electronic monitor with full digital display and 300 test memory.
- For use with all mineral oils, water and oil/water emulsions.

System20
Inline Sensors & Monitors

Features & Benefits

Covering a wide range of flow rates, fluid types and applications, Parker's System 20 sensors are designed to be used with System 20 electronic or analogue monitors, icountLCM, icountPD and the H_2Oil. Specially developed System20 sensors are available for use with aggressive fluids. (EPDM Seals)

- System20 monitors, combined with the inline sensor, give the user accurate and instant readings of flow, pressure and temperature without the need for costly system downtime.
- For use with all mineral oils, water and water/oil emulsions.

Analogue Monitor

- Utilises 3 Day-Glo dial gauges with a protective hinged cover.
- Calibrated up to 380 l/min with dual scale bar/ PSI & °C/°F. (USGPM also available)

EM20 Electronic Monitor

- Gives a full digital display.
- Automatically calibrated for all 3 sizes of sensor.
- Indicates line, differential and rising peak pressure.
- Easily scrolled from metric to US.
- 300 test memory.
- Capable of downloading saved data to download software.

Typical Applications

- Drilling equipment
- Mining
- Grinding and conveying
- Industrial hydraulics
- Mobile applications

Hydraulic system users need to ensure that lost production is kept to the absolute minimum. To ensure this, predictive maintenance utilising routine condition monitoring of hydraulic systems is essential.

System20 inline sensors remain at the heart of condition and contamination monitoring. Whether you're mining the coal, building the new bypass, harvesting the crops, crossing the oceans or drilling offshore – whatever your industry, System20 represents the premier system monitoring available today.

2 sizes of System20 Inline Mobile Sensors are available

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

System20
Inline Sensors & Monitors

Specification: Sensors

Construction:
Industrial: (STI)
Body: S/Steel 303
Internal components: S/Steel and Brass
Mobile: (STS)
Body: S/Steel 303
Internal components: Cast Aluminium and S/Steel

Flow capacities:
All suitable for use with oil, water and oil/water emulsion
Size 0: 6-25 l/min (1.58 - 6.6 US GPM)
Size 1: 20-100 l/min (5.28 - 26.41 US GPM)
Size 2: 80-380 l/min (21.13 - 100.38 US GPM)

Max. working pressure:
420 bar (6000PSI)

Capability:
Reverse flow (STI only)

Pressure drop:
At max. rated flow, Δp is 1.1 bar (mineral oil fluid at 30 cSt 140 SSU).

Ports:
Size 0: G3/8
Size 1: G¾
Size 2: G1¼

Repeatability:
±1% FSD

Accuracy:
Flow ±2.5% full scale deflection*

Weight:
Size 0: 0.5kg (1.2lbs)
Size 1: 3.5kg (8.4lbs)
Size 2: 4.4kg (9lbs)

Aggressive Fluid Applications:
EPDM internal/external seals

Dimensions (mm)

	Size	Model	AØ	B	C
Industrial	0	STI	30	95	56
	1	STI	41	137	66.5
	2	STI	66.7	231.3	73.5
Mobile	1	STS	41	105	79
	2	STS	60	165	97

System20 Saving £50,000 Pump Damage

Installing System 20 was part of a major restructuring plan to improve mining effectiveness and profitability. Machine operator training and oil storage operative training were essential elements of the plan. Prior to this investment, pump terminal damage could cost £10,000 for a replacement, over £1000 service costs and up to £39,000 in lost production. Add to this the difficulties of the mine's geography and it's easy to see the problems that have now been overcome.

System20 reduces the cost of lost Production

The mining industry puts a considerable demand on hydraulics and there are others such as agricultural machinery, harvesters or tractors and, for example, cement manufacturing plants that are equally demanding of hydraulic efficiency.

A grinding and conveying plant processes in excess of 1000 tons of ore per day in the manufacture of cement products. A days lost production costs £000's. After one year of operation the Plant Engineers decided to invest in System20 equipment, strategically placed to allow the Engineers to 'fault-find' the major components quickly and easily. The result is that downtime and loss of production have been reduced by 80%.

Ordering Information

Standard products table

Product number	Supersedes	Size	Flow range l/min	Fluid type	Port threads	Reverse Flow capability
STI0144100	STI.0144.100	0	6-25	Mineral	3/8	Yes
STI1144100	STI.1144.100	1	20-100	Mineral	3/4	Yes
STI2144100	STI.2144.100	2	80-380	Mineral	1 1/4	Yes
STI0148100	STI.0148.100	0	6-25	Aggressive	3/8	Yes
STI1148100	STI.1148.100	1	20-100	Aggressive	3/4	Yes
STI2148100	STI.2148.100	2	80-380	Aggressive	1 1/4	Yes
STS5117210	STS.5117.210	1	20-100	Mineral	3/4	No
STS5217210	STS.5217.210	2	80-380	Mineral	1 1/4	No

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.
Note 3: Mobile Sensors are also available - Contact Parker
Note 4: *Accuracy 5.5% > 95 L/min. (Applies to STI1144100 and STI1148100 only)

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

System20
EM20 Electronic Monitor

Electronic Monitor Specification

Construction:
A sealed assembly requiring no routine maintenance or adjustment. Body moulding in Acrylonitrile Butadene Styrene (ABS). Key pad moulded in silicon rubber. The monitor is suitable for use with all mineral oils, water and oil/water emulsions.

LCD details

Flow section:
The analogue flow scale has reverse flow and overflow indication and provides a percentage reading of the digital full scale display automatically calibrated for all sizes of System 20 Sensor.

Pressure section:
Designed to indicate line pressure, differential pressure and rising peak pressure. Connected to a System 20 Sensor it will monitor pressure up to 420 bar (6000 psi) with an accuracy of ±1% FSD.

Temperature section:
Temperature reading between -10°C and +110°C (14°F to 230°F).

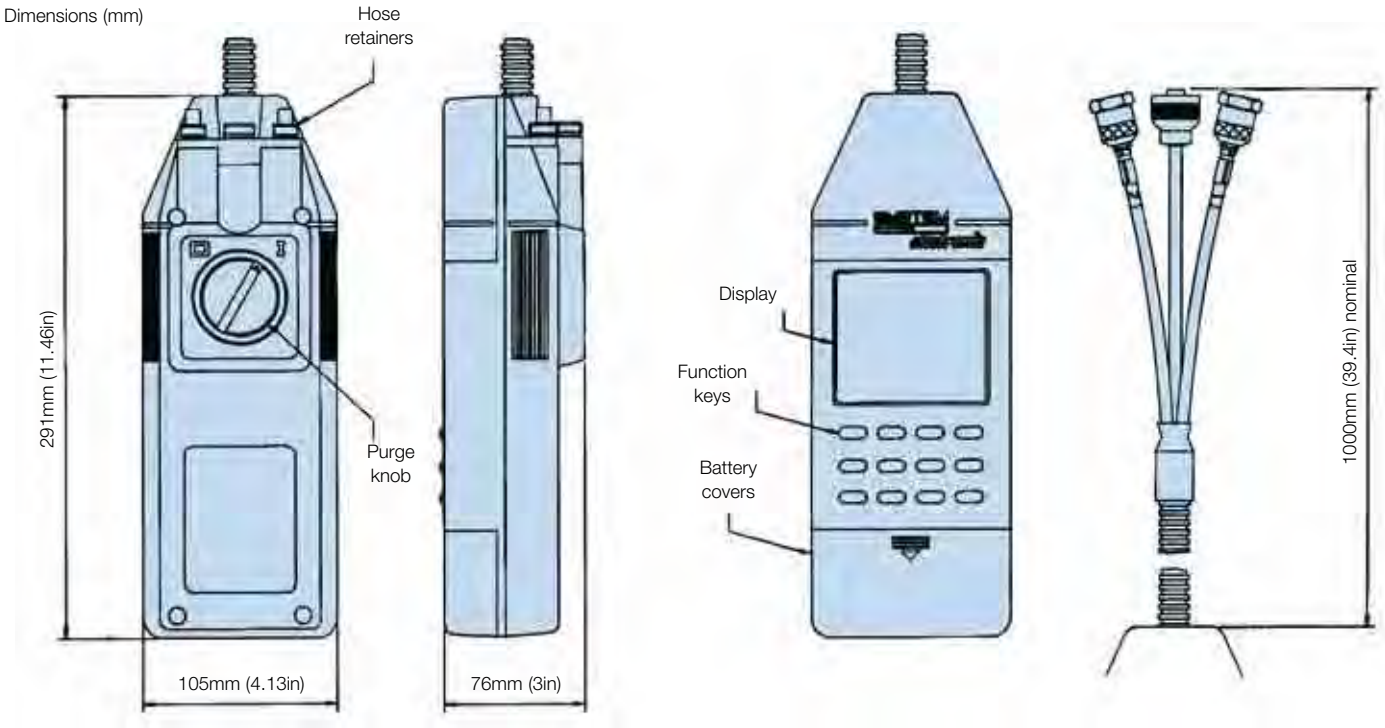
Weight:
1.4kg (3lbs).

Data logging:
Each test logs the following data:
Test number; time & date; sensor size; media tested; flow rate, pressure & temperature.

Data download:
The System 20 electronic monitor is capable of downloading saved test data to a compatible PC via an RS232 connection using datum.

Batteries:
6 x AA batteries.

Re-calibration:
Annual certification by an approved Parker Service Centre.



Ordering Information

Standard products table

Product number	Supersedes	Description
EM209000	EM20.9000	System 20 electronic monitor
ACC6NJ000	P653607	Transit case
ACC6NJ001	B85617	Dongle and cable assembly

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

System20
Analogue Monitor

Analogue Monitor Specification

Construction:
A sealed assembly requiring no routine maintenance or adjustment. Body moulding in Acrylonitrile Butadene Styrene (ABS). The monitor is suitable for use with all mineral oils, water and oil/water emulsions. The monitor has 3 dayglo dial gauges and features a protective hinged cover.

Gauge details

Flow section:
The flow scale has double scales for size 1 and 2 sensors only. Calibrated up to 100 l/min (26 US GPM) and 380 l/min (100 US GPM). The flow dial has excess-flow indication.

When the system is in reverse flow or when the high pressure lines to the sensor have been transposed, a 'below zero' indication is given.

Note: For measuring size Ø sensors - contact Parker

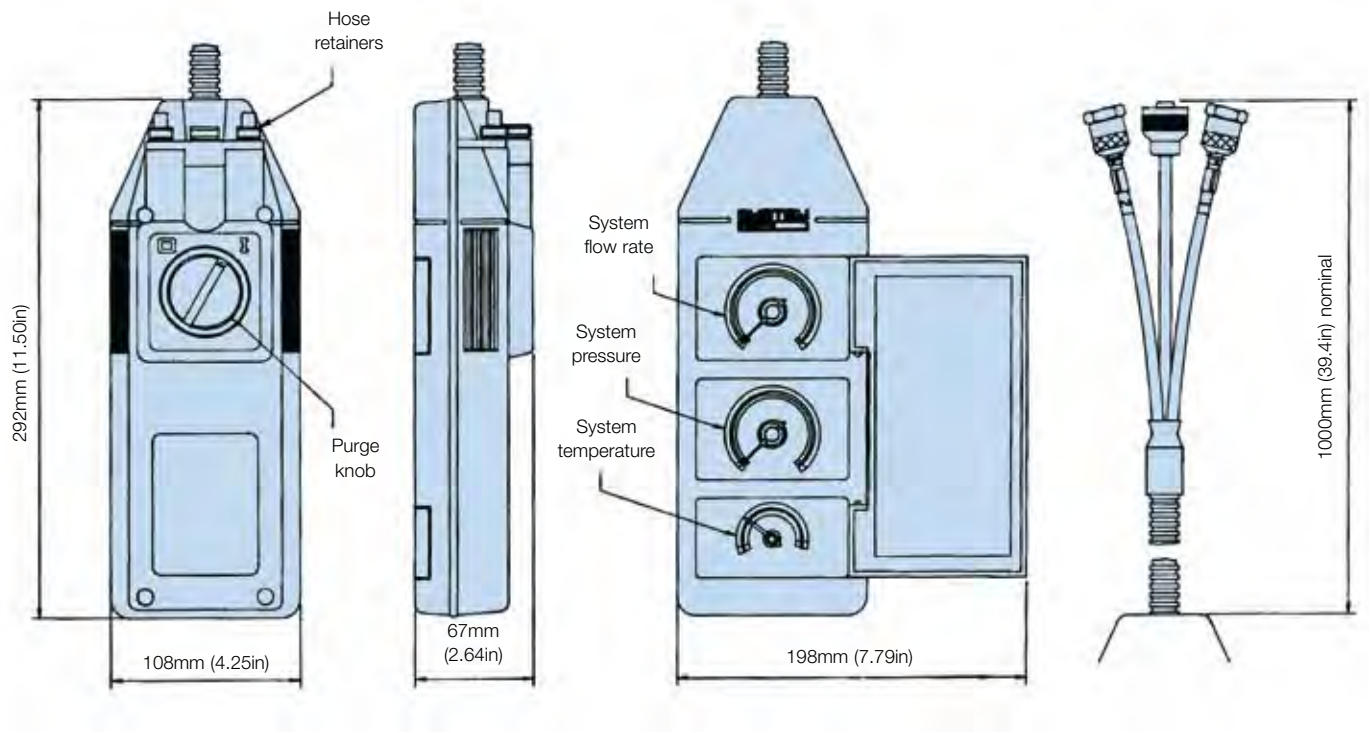
Pressure section:
Dial readings in both bar and psi up to 420 bar (6000psi).

Temperature section:
The temperature dial gives readings between -10°C and +110°C (14°F to 230°F).

Weight:
1.4kg (3lbs).

A viscosity chart is provided for mineral oil applications where monitoring is required at variable viscosities (cSt).

Dimensions (mm)



Ordering Information

Standard products table

Product number	Supersedes	Media type	Flow readings	Pressure readings	Temperature readings
STM6211110	STM.6211.110	Oil	l/min	Dual scale bar/PSI	Dual scale °C/°F
STM6611110	STM.6611.110	Oil	US GPM	Dual scale bar/PSI	Dual scale °C/°F
STM6211120	STM.6211.120	Water	l/min	Dual scale bar/PSI	Dual scale °C/°F
STM6611120	STM.6611.120	Water	US GPM	Dual scale bar/PSI	Dual scale °C/°F

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Accessories

Product number	Supersedes	Description
ACC6NJ000	P653607	Transit case
ACC6NJ002	P653106	Metal sensor protective cap

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

MCM20

Autoremote Particle Counter

Permanent installation ensures 24/7 monitoring of systems

Online continuous particle counting to protect fluid systems

MCM20 online continuous particle counting ensures constant system monitoring within defined parameters. PC/PLC controlled, it can be pre-set to carry out tests at specific intervals and connects permanently to a System20 sensor via a 2-metre hose assembly.

Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

Product Features:

- MCM20 online continuous particle counting ensures constant system monitoring within defined parameters.
- Calibration carried out to ISO11171 via ISO11943 principles. Multi-standard ISO and NAS reporting including full count/100 ml. detection at size ranges.
- Interactive handset options available for direct test sequencing, change test parameters and last test results.
- PC/PLC controlled.
- Can be pre-set to carry out tests at specific intervals.
- Connects permanently to System20 sensors via 2 metre hose assembly.

MCM20

Autoremote Particle Counter

Features & Benefits

- The MCM20 is an online continuous particle counter ensuring constant system monitoring within defined parameters.
- PC/PLC controlled
- Ensures constant system monitoring.
- Can be pre-set to carry out tests at specific intervals.
- Can be set up via optional detachable Handset.
- Enclosed in a metal casing, with internal workings on a removable chassis for ease of service and calibration.
- Connects permanently to System20 sensors via 2 metre hose assembly (supplied).
- Simple data formatting programme for trend analysis.

Typical Applications

- Test rigs
- Construction machinery
- Industrial plant
- Hydraulic equipment & system manufacturers
- Paper processing
- Steel rolling mills
- Military equipment application

The Parker MCM20

Using proven portable particle counting technology (icountLCM20), the MCM20 and its principles are available to users where continuous, permanent installed monitoring is required.

The MCM20 utilises the latest laser diode method of particle counting. The unit is enclosed in a metal casing with access to the hydraulic connection, DC input power, fuse holder and PC/PLC connection ports located on the front panel.

The internal workings are manufactured onto a removable chassis for ease of service and calibration.

Test cycle time:
Variable between 30 seconds and 3 minutes.

Repeat test time:
Continuous Mode or between 30 seconds and 1440 minutes (24 Hours).

Principle of operation:
Optical scanning analysis and measurement of actual particles.

Particle counts:
6 channels either ACFTD or MTD calibrated.

International codes:
ISO 7-22, NAS 0-12.

Storage temperature:
-40°C to +80°C (104°F to 176°F).

Operating temperature:
+5°C to +60°C (41°F to 140°F) (hydraulic oil temperature).

Unit control connection:
Terminal protocol via RS 232 or optional handset.

Data retrieval:
Local PC / PLC program or by optional handset.

Calibration:
By accepted on-line methods confirmed by relevant International Standard Organisation procedures.

Re-calibration:
Annual certification by an approved Parker Service Centre.

Max. working pressure:
420 bar (6000 PSI).

Minimum working pressure:
2 bar (29 PSI).

Fluid compatibility:
Mineral oil or petroleum based fluids.
Aggressive fluid version also available.

Sample requirements:
0.3 – 1.5 DP bar (differential pressure) via approved inline sampling concept.

System connection:
Via System 20 inline sensors / single point sampler

Computer compatibility:
Interface via RS 232 connection @ 9600 baud rate.

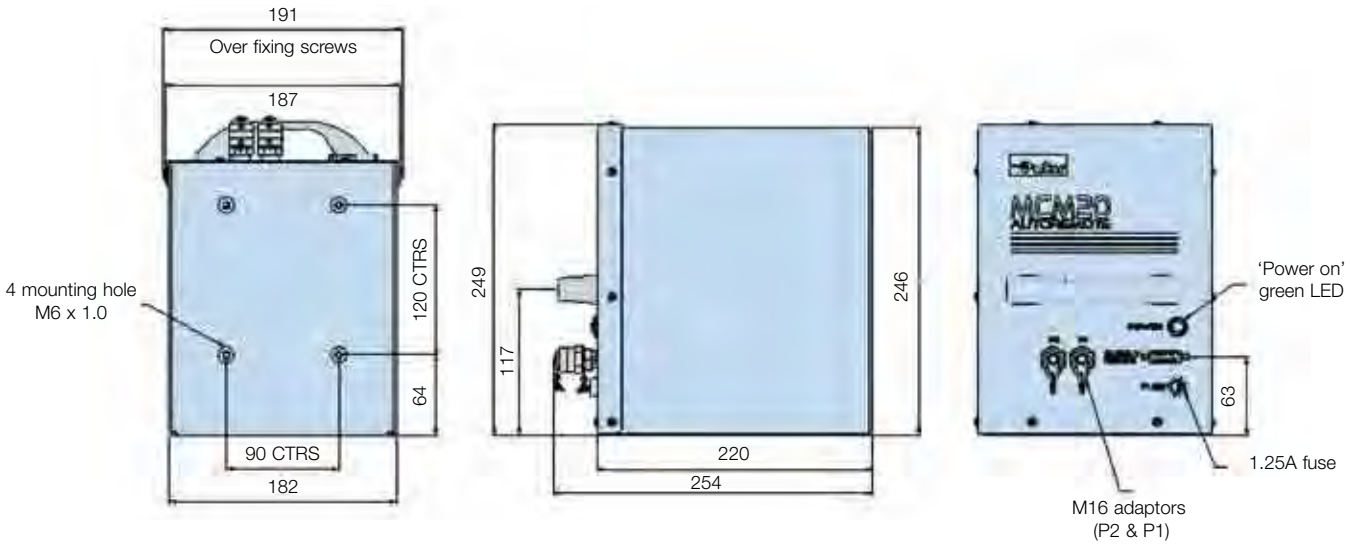
Weight:
8.75kg.

Power requirement:
12 Vdc input. (1.25A (T) fuse). Regulated.

Installation:
Back/base M6x1.0 mounting inserts (see annotated diagrams).

Software:
LabView demonstration software.

Dimensions (mm)



Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

MCM20

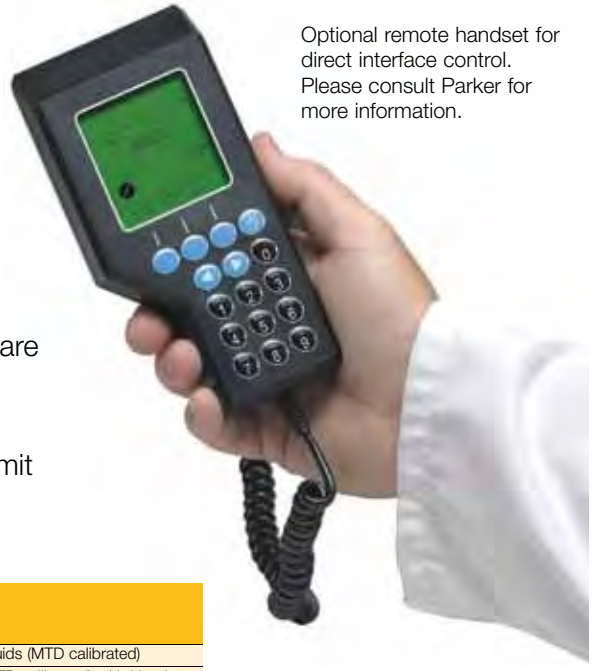
Autoremote Particle Counter

The comms protocol for the product is as follows:
Baud rate = 9600
Data bits = 8
Parity = None
Stop bits = 1
Flow control = None

Labview

- Customised demonstration/software for MCM operation.
- Full graphic display.
- Visual indication of limit parameters.

Optional Remote Handset



Optional remote handset for direct interface control. Please consult Parker for more information.

Standard products table

Product number	Supersedes	Description
MCM202022	MCM20.2022	A/remote particle counter for mineral fluids (MTD calibrated)
MCM202022HS	MCM20.2022.HS	A/remote particle counter for mineral fluids (MTD calibrated) with Handset
MCM202021	MCM202021	A/remote particle counter for mineral fluids (ACFTD calibrated)
MCM202021HS	MCM202021HS	A/remote particle counter for mineral fluids (ACFTD calibrated) with handset
MCM202061	MCM202061	A/remote particle counter for mineral fluids (ACFTD calibrated)
MCM202061HS	MCM202062	A/remote particle counter for mineral fluids (ACFTD calibrated) with handset
MCM202062	MCM202061HS	A/remote particle counter for mineral fluids (MTD calibrated)
MCM202062HS	MCM202062HS	A/remote particle counter for mineral fluids (MTD calibrated) with handset
ACC6NB001	B94106	Handset (Blue keypad) mineral fluids
ACC6NB002	B94107	Handset (Red keypad) agressive fluids
ACC6NN003	B94802	2 meter mineral hose assembly
ACC6NN004	B94801	2 meter aggressive hose assembly

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

icountPD

Online Particle Detector

For mineral oil, aggressive fluids or fuels

(ATEX approved version available. See page 428)

Independent monitoring of system contamination trends

The icountPD Particle Detector from Parker represents the most up to date technology in particle detection. The design dynamics, attention to detail and moulding compactness of the permanently mounted, on-line particle detector module, combined with on-board, laser based, leading-edge technology, brings to all industries a truly revolutionary, particle detector as a remarkable cost effective market solution to fluid management and contamination control.

icountPD for mineral oil applications

Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

Product Features:

- Independent monitoring of system contamination trends.
- Warning LED or digital display indicators for Low, Medium and High contamination levels.
- Visual indicators with power and alarm output warnings.
- Moisture %RH indicator (optional).
- Cost effective solution to prolong fluid life and reduce machine downtime.
- MI2 8 pin or Deutsch Connector options.
- Continuous performance for prolonged analysis.
- Fuel, Hydraulic and phosphate Ester fluid compatible construction.
- Self diagnostic software.
- Full PC/PLC integration technology such as:- RS232 and 0-5Volt, 4-20mA, CAN(J1939) (Contact Parker for other options).
- Set up and Data logging support software included.

icountPD

Online Particle Detector

Features & Benefits

Diagnostic Self Check Start-up Time:
Customer selectable 5-900 seconds
Measurement Period:
5 to 180 seconds
Reporting interval through RS232:
0 to 3600 seconds
Digital -/LED display update time:
Every second
Limit Relay Output:
Changes occur +/- 1 ISO code at set limit (Hysteresis ON) or customer set (Hysteresis OFF)
Particle / % RH Output Signal:
Continuous
Principle of operation:
Laser diode optical detection of actual particulates
International Codes:
ISO 7 – 22, NAS 0 – 12
Calibration:
By recognised online methods confirmed by the relevant ISO procedures
MTD – Via a certified primary ISO 11171 automatic particle detector using ISO 11943 principles, with particle distribution reporting to ISO 4406:1996
ACFTD – Conforming to ISO 4402 principles with particle distribution reporting to ISO 4406:1996
Recalibration:
Contact Parker Hannifin
Performance:
+/- 1 ISO Code (Dependant on stability of flow)
Reproducibility / Repeatability:
Better than 1 ISO Code
Power Requirement:
Regulated 9 to 40Vdc
Current Rating:
Typically 120mA
Hydraulic Connection:
Mineral M16x2 test Points
Aggressive: 5/8" BSF test Points
Fuel: No test Points 1/8 BSP (Female) Ports (Plugged)
Required Flow Range through the icountPD:
40 to 140 ml/min (Optimum Flow = 60ml/min)

Online Flow Range via System 20 Inline Sensors (Hydraulic systems only):
Size 0 = 6 to 25 l/min - (Optimum Flow = 15 l/min)
Size 1 = 24 to 100 l/min - (Optimum Flow = 70 l/min)
Size 2 = 170 to 380 l/min - (Optimum Flow = 250 l/min)
Required Differential Pressure across Inline Sensors:
0.4 bar (Minimum)
Viscosity Range:
1-500 cSt
Temperature:

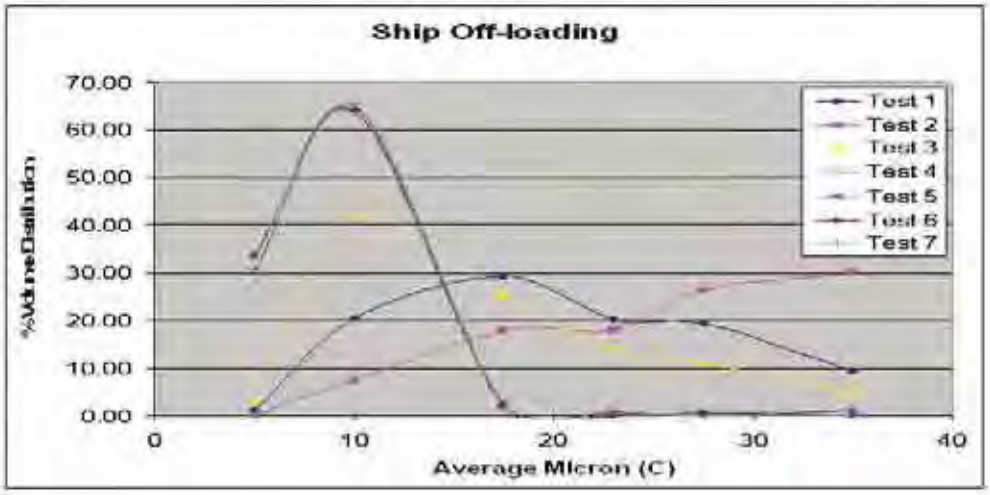
Ambient storage temperature	-20°C to +40°C (-4°F to +104°F)
Environment operating temperature	+5°C to +60°C (+41°F to +140°F)
Fluid operating temperature	+5°C to +80°C (+41°F to +176°F)

Working pressure:
2 to 420 bar (30-6000 PSI)
Moisture sensor calibration (Not offered with the fuel version):
±5% RH (over compensated temperature range of +10°C to +80°C) (+50°F to +176°F)
Operating humidity range:
5% RH to 100% RH
Moisture sensor stability:
±0.2% RH typical at 50% RH in one year
Certification:
IP66 rated. Refer to the EC Declaration of Conformity.
EMC/RFI – EN61000-6-2:2001
EN61000-6-3:2001
Materials:
User friendly Abs construction.
Stainless Steel hydraulic block.
Dimensions:
182mm x 155mm x 86mm (7.2" x 6.1" x 3.4")
Weight:
1.3kg (2.9lb)
Seals:
Mineral: Fluorocarbon. Aggressive: EPDM. Fuel: Fluorocarbon.
Computer Compability:
Parker recommends the use of a 9-way D-type connector. This can be connected to a USB port using a USB-serial adaptor. Note that these connectors/adaptors are **NOT** supplied with icountPD units: contact Parker Hannifin for advice.

icountPD for use with aviation fuels
Field Data - Major International Airport

First 3 measurements represent fuel from a previous cargo followed by a regular clean delivery, thus demonstrating the range of fuel cleanliness being experienced at this particular location.

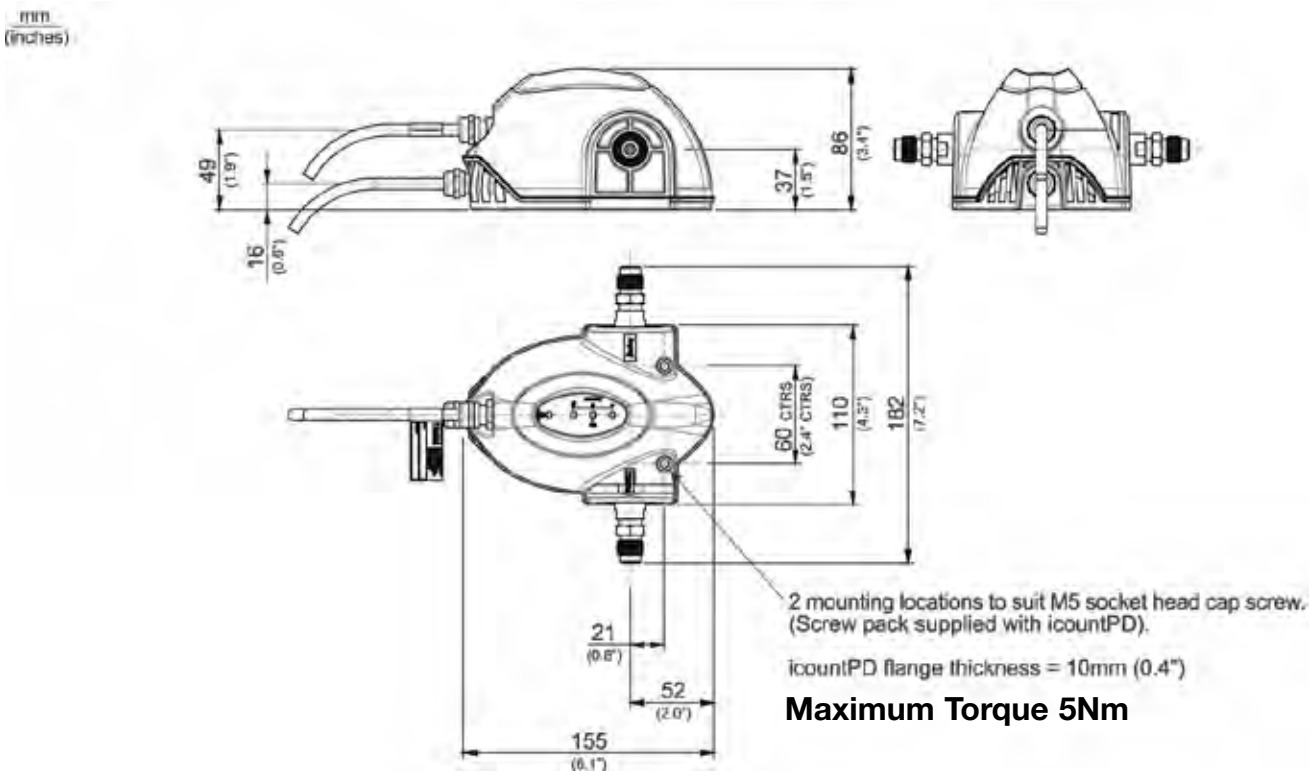
	>4µ	>6µ	>14µ	>21µ
Test 1	81058.3	62126.1	17817.6	6066.2
Test 2	87834.5	74763.0	35454.1	18044.4
Test 3	51383.4	32796.9	4424.8	1213.4
Test 4	1593.3	422.7	9.6	1.7
Test 5	1226.1	261.5	2.4	0.4
Test 6	1085.7	210.9	1.3	0.1
Test 7	1037.9	198.7	1.3	0.1



icountPD for use with aviation fuels

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

Dimensions / Installation Details



Typical Applications

- **Mobile Equipment**
  - o Earth Moving Machinery
  - o Harvesting
  - o Forestry
  - o Agriculture

Monitoring of the hydraulics, enabling the vehicles to function to their best capability under load conditions through pistons, servo valves, control rams and gear pumps.

- **Industrial Equipment**
  - o Production Plants
  - o Fluid Transfers
  - o Pulp & Paper
  - o Refineries

To monitor the cleanliness of the equipment throughout the production line, from the machine tool controlled hydraulics through to contamination of fluid transfer. Ensuring the integrity of the fluid is maintained throughout the refining process.

- **Power Generation**
  - o Wind Turbines
  - o Gearboxes
  - o Lubrication Systems

With continuous monitoring the optimum level is achieved in the least amount of time.

- **Maintenance**
  - o Test Rigs
  - o Flushing Stands

To increase efficiency of your equipment by continuously monitoring the cleanliness level of the hydraulic fluid.

- **Fuel Contamination Detection**
  - o Fuel Storage Tanks
  - o Vehicle fuel tanks
  - o Uploading fuel into an aircraft

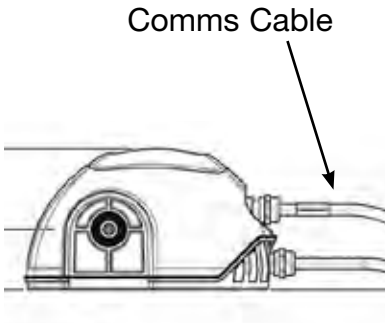
24/7 detection of particulate levels in most fuels including aviation fuel - Jet A-1 fuel specification.

icountPD
Online Particle Detector

M12 Communication cable: wiring configuration

M12 Communication cable

Pin	4-20mA option connections	0-5v/0-3v option connections
1	NOT USED	NOT USED
2	RS232 Ground (Pin 5**)	RS232 Ground (Pin 5**)
3	Channel A, ISO 4µm(c)*	Channel A, ISO 4µm(c)*
4	Channel B, ISO 6µm (c)* or NAS (if selected)	Channel B, ISO 6µm (c)* or NAS (if selected)
5	RS232 Receive (Pin 3**)	RX232 Receive (Pin3**)
6	RS232 Transmit (Pin 2**)	RS232 Transmit (Pin 2**)
7	Moisture sensor channel (if fitted)	Moisture sensor channel (if fitted)
8	Channel C, ISO 14µm (c)*	Channel C, ISO 14µm (c)*



Important Note: It is the responsibility of the end user to ensure that the cable's braided screen is terminated to a suitable earth bonding point.

* Optional – refer to the 'IcountPD part number specifier' section in this manual.

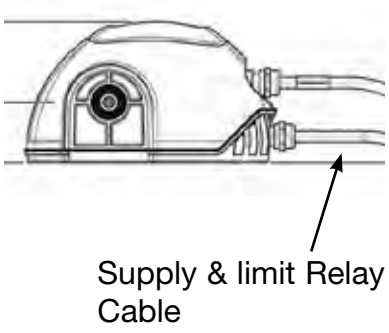
** A standard USB serial adaptor can be used with the recommended 9-way D-type connector to convert RS232 to USB.

Limit relay alarm levels

The IcountPD can be specified with a built-in limit switch relay which can be triggered when a preset alarm level is reached. The relay contacts can be used to switch on or off an external device.

M12 Supply and Relay (if fitted) cable

Pin	Current loop options connections	0-5v/0-3v option connections
1	Product supply 9-40Vdc	Product supply 9-40Vdc
2	4-20mA Supply 12-20Vdc	0-5 / 0-3V Supply 12-24Vdc
3	Relay (Normally Closed)*** (if fitted)	Relay (Normally Closed)*** (if fitted)
4	Relay (Normally Open)*** (if fitted)	Relay (Normally Open)*** (if fitted)
5	NOT USED	NOT USED
6	NOT USED	0-5V / 0-3V Supply 0 Vdc
7	Main supply 0Vdc	Product supply 0Vdc
8	Relay (Common)*** (if fitted)	Relay (Common)*** (if fitted)



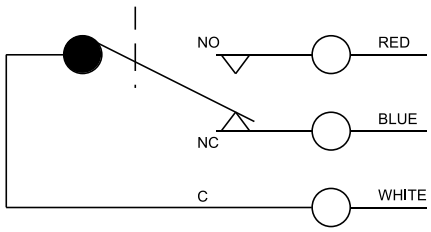
Note: If the moisture sensor is fitted without either option then the output is RS232.

Parker Hannifin recommend that the mating M12 connector cables are screened. These cables are available from Parker Hannifin – ordering information section.

*** Optional – refer to ordering information section.

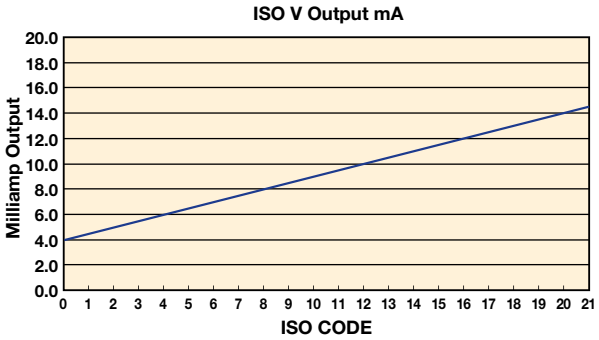
(Limit Relay Wiring Instructions)

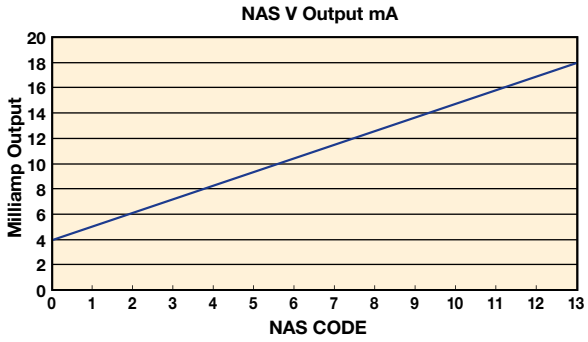
NORMALLY OPEN
NORMALLY CLOSED
COMMON



Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

Variable mA output settings





The following table can be used to equate the analogue output to an ISO or NAS Code.

Example ISO code 12 is equal to 10mA

mA	ISO
4.0	0
4.5	1
5.0	2
5.5	3
6.0	4
6.5	5
7.0	6
7.5	7
8.0	8
8.5	9
9.0	10
9.5	11
10.0	12
10.5	13
11.0	14
11.5	15
12.0	16
12.5	17
13.0	18
13.5	19
14.0	20
14.5	21
15.0	**
15.5	**
16.0	**
16.5	**
17.0	**
17.5	**
18.0	**
18.5	**
19.0	OVERRANGE
19.5	OVERRANGE
20.0	ERROR

mA	NAS
4	00
5	0
6	1
7	2
8	3
9	4
10	5
11	6
12	7
13	8
14	9
15	10
16	11
17	12
18	**
19	**
20	ERROR

The following table can be used to equate the analogue output to an ISO or NAS Code.

Example ISO code 12 is equal to 10mA

4-20mA output settings

ISO Setting

mA current = (ISO Code / 2) +4 eg. 10mA = (ISO 12 / 2) +4

or

ISO Code = (mA current - 4) *2 eg. ISO 12 = (10mA -4) *2

NAS Setting

mA current = NAS Code +5 eg. 15mA = NAS 10 +5

or

NAS Code = mA current -5 eg. NAS 10 = 15mA – 5

Variable voltage output settings

The variable voltage output option has the capability of two different voltage ranges: a 0–5Vdc range as standard, and a user-selectable 0–3Vdc range. The ‘Full list of commands’ on how to change the voltage output, are available from Parker.

The following tables can be used to relate the analogue ouptut to an ISO or NAS code.

For example, in a 0–5Vdc range, ISO code 16 is equal to an output of 3.5Vdc. In a 0–3Vdc range, ISO code 8 is equal to an output of 1.0Vdc.

Table relating ISO codes to Voltage output

ISO	Err	0	1	2	3	4	5	6	7	8	9	10	11	>
0–5Vdc	<0.2	0.3	0.5	0.7	0.9	1.1	1.3	1.5	1.7	1.9	2.1	2.3	2.5	
0–3Vdc	<0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	

cont.

ISO	12	13	14	15	16	17	18	19	20	21	22	Err
0–5Vdc	2.7	2.9	3.1	3.3	3.5	3.7	3.9	4.1	4.3	4.5	4.7	>4.8
0–3Vdc	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	>2.45

Table relating NAS codes to Voltage output

NAS	Err	00	0	1	2	3	4	5	6	7	8	9	10	11	12	Err
0–5Vdc	<0.4	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	>4.6
0–3Vdc	<0.2	N.S.	0.3	0.5	0.7	0.9	1.1	1.3	1.5	1.7	1.9	2.1	2.3	2.5	2.7	>2.8

icountPD
Online Particle Detector

Digital display parameters (ISO 4406/NAS 1638)

Start up

1. Once the icountPD has been connected to a regulated power supply, the product logo is displayed for approximately five seconds as the IcountPD performs a self system diagnostic check.
2. The IcountPD then automatically starts monitoring using factory default test parameters.

Digital display indication

The digital display will show the actual measured codes, the channel (µ) size and the user definable limits. Note that the channel size and limits are displayed alternately.

The Moisture Sensor reading (%RH) will also be shown – if the Moisture Sensor option is fitted.

The order of trigger for both the codes and Moisture Sensor option is:

- Solid digit(s) = code(s) that are at or below the set point (limit)
- Flashing digit(s) = code(s) that are above the set point (limit)

The display for ISO4406 and NAS1638 are identical.

Error detection:

In the unlikely event of a error occurring, the digital display on the icountPD will simply display the actual error code only – i.e. ERROR 13 (A full list of error codes are detailed in the IcountPD User Manual).

Moisture sensor output settings

The Moisture Sensor is an option that can be included when ordering the icountPD.
The Moisture Sensor reports on the saturation levels of the fluid passing through the icountPD sensing cell.
The output is a linear scale, reporting within the range of 5% saturation to 100% saturation.

Table relating Saturation levels in the sensing cell to icountPD outputs

Saturation	4–20mA	0–3Vdc	0–5Vdc
5%	4.8	0.15	0.25
25%	8	0.75	1.25
50%	12	1.50	2.50
75%	16	2.25	3.75
100%	20	3.00	5.00

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

Flow control ACC6NN019

A pressure compensated, flow control device (Parker Hannifin part number ACC6NN019) has been develop to give the icount PD greater flexibility.

The flow control device enables testing where flow ranges are out side the icountPD specification i.e. (40 – 140 ml/min), or where pipe diameters do not allow the icountPD to be installed.

The flow control device fits onto the downstream (outlet) side of the icountPD. A 06L EO 24 deg cone and hydraulic adaptor is supplied which enables connection directly to the icountPD. Alternatively the flow control device can be fitted further down stream.

The compact design requires no setting up or further user intervention as long as the system conditions remain within the recommended pressure and viscosity ranges as below.

P/N ACC6NN019

Working pressure range	10 to 300 bar
Differential pressure range	10 to 300 bar
Working viscosity range	10 to 150 Cst

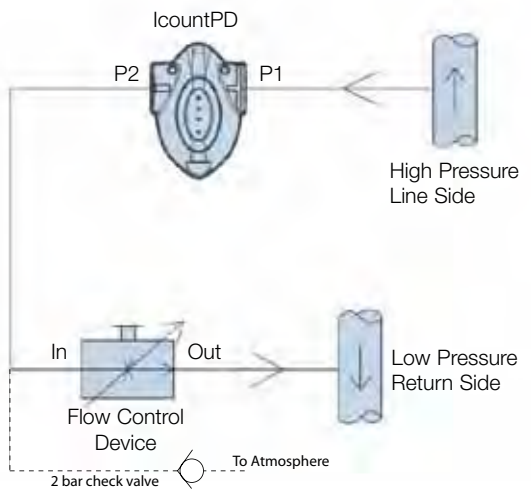
IcountOS – Oil Sampler (IOS)

- New and under development in the detection of contaminates distribution in various Aviation fuels.
- Portable monitoring tool providing fluid qualification to ISO 4406:1999 standards.
- Supplements the icount LCM20 and ACM20 product portfolio.
- Quick, simple to use monitoring tool for sampling fluids from containers, fuel bunkers and holding tanks.
- Field solution to Laboratory methods for the detection of solid contamination and free water inference.

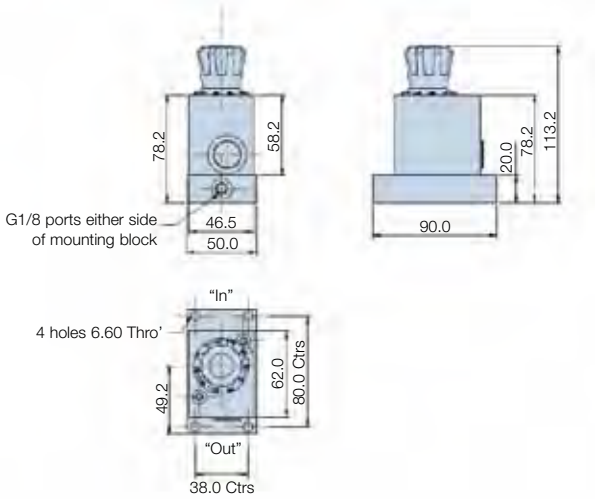
icountPD

Online Particle Detector

Hydraulic Connection Diagram



Dimensions



Actuator	Manual flow rate adjustable via control knob
Mounting Type	4 off mounting holes to suit M6 screws (not supplied)
Mounting position	Any
Weight	1.7kg (3.7lb)
Fluid Temperature	5°C to +80°C (+41°F to 176°F)
Ambient storage temperature	-20°C to +40°C (-4°F to +104°F)
Viscosity range	20cSt to 500cSt (If lower than 20cSt contact Parker)
Differential pressure range	5 to 315 bar
Maximum pressure	315 bar
Flow direction	'IN' to 'OUT' flow control function
Port thread detail	1/8" BSPP (test points not supplied)
Internal Seals	Fluoroelastomer

This application shows uploading fuel into an aircraft with the icountPD in use to monitor as a 'go/no go' device.

Communication Options

The icountPD may be configured using the icountPD Setup Utility. For more direct control of the device using its communications protocol, you may also use the Microsoft Windows® HyperTerminal program, but note that this program is not currently supplied with the Windows Vista™ operating system. These two ways of communicating with icountPD are described in the following section.

icountPD Setup Utility software (supplied)

Communication Protocol

The Communication protocol for the serial communication link is to be used with **Microsoft Windows HyperTerminal**. The settings are as follows:

Baud rate	9600
Data bits	8
Parity	None
Stop bits	1
Flowcontrol	None

The commands used with this product are made up of Read, Set and Start / Stop commands.

- Set commands allow the value or values of parameters to be set
- Read commands allow the value or values or parameters to be read
- Start/Stop allows the user to start and stop tests.

Example:

[SDF dd/mm/yy] - sets the date format.

[RDF] - reads the product date format.

All commands are sent in ASCII characters, and the protocol accepts both upper and lower case characters as the examples below:

SDF

SdF

Note: A full list of commands are detailed in the user manual

icountPD

Online Particle Detector

Ordering Information

Standard Products Table

Part number	Fluid type	Calibration	Display	Limit relay	Communication	Moisture	Cable connector kit
IPD12222130	Mineral	MTD	LED	YES	RS232 / 4 - 20mA	NO	M12, 8 pin plug connector
IPD12222230	Mineral	MTD	LED	YES	RS232 / 4 - 20mA	YES	M12, 8 pin plug connector
IPD12223130	Mineral	MTD	LED	YES	RS232 / 0 - 5V	NO	M12, 8 pin plug connector
IPD12223230	Mineral	MTD	LED	YES	RS232 / 0 - 5V	YES	M12, 8 pin plug connector
IPD12322130	Mineral	MTD	Digital	YES	RS232 / 4 - 20mA	NO	M12, 8 pin plug connector
IPD12322230	Mineral	MTD	Digital	YES	RS232 / 4 - 20mA	YES	M12, 8 pin plug connector
IPD12323130	Mineral	MTD	Digital	YES	RS232 / 0 - 5V	NO	M12, 8 pin plug connector
IPD12323230	Mineral	MTD	Digital	YES	RS232 / 0 - 5V	YES	M12, 8 pin plug connector

Product Configurator

Key	Fluid type		Calibration		Display		Limit relay		Communication		Moisture		Cable connector kit	
IPD	**1**	**Mineral**	**2**	**MTD**	2	LED	**2**	**Yes**	**2**	**RS232 / 4-20mA**	1	No	10	Deutsch 12-pin DT Series connector
	2	Phosphate ester			3	Digital			**3**	**RS232 / 0-5V**	**2**	**Yes**	**30**	**M12, 8 pin plug connector**
	3	Aviation fuel (4 channel)							5	RS232/CAN-bus (J1939)				

Fluid type		
3	Aviation fuel (4 channel)	This version can not come with a Moisture sensor option
3	Aviation fuel (4 channel)	This version can not come with a Moisture sensor option

Note - Aviation Fuel option can also be used for Diesel fluids
Note - RS485 option - comunication upto 5000 Meters - Contact Parker
Note - Wireless communication (GPRS - LAN - WiFi - Sat) - Contact Parker

Accessories

Part number		Description
Mineral fluids	**Aggressive fluids**	
ACC6NE003	ACC6NN002	1 metre hose length
ACC6NN003	ACC6NN004	2 metre hose length
ACC6NN005	ACC6NN006	5 metre hose length
ACC6NN007	ACC6NN008	1/4" BSP fitting
ACC6NN009	ACC6NN010	1/8" BSP fitting
ACCNN011	ACC6NN012	1/8" BNPT fitting
SPS2021	SPS2061	Single point sampler
S840074	Contact Parker	Flow control device
ACC6NN019	Contact Parker	Flow control valve
ACC6NN013		12 volt regulated power supply
ACC6NN014	Contact Parker	2 x 5 metre M12 - 8 pin cable kit*
ACC6NN016		Deutsch Connector Kit
ACC6NN017		RS232 To USB cable kit
ACC6NN018		M12 - 8 pin to RS232 engineers tool

* M12 Cable kit consists of two 5 metre cables to enable all output options (Communications cable and Relay/Power Supply cable)
* * Note that the aggressive fluid hoses are provided as a single hose, not in pairs.
Note: For details on the icountPD Z2 ATEX approved particle detector see page 428.

Part number	Supersedes	Size	Flow range l/min	Fluid type	Port threads	Reverse Flow capability
STI0144100	STI.0144.100	0	6-25	Mineral	3/8	Yes
STI1144100	STI.1144.100	1	20-100	Mineral	3/4	Yes
STI2144100	STI.2144.100	2	80-380	Mineral	1 1/4	Yes
STI0148100	STI.0148.100	0	6-25	Aggressive	3/8	Yes
STI1148100	STI.1148.100	1	20-100	Aggressive	3/4	Yes
STI2148100	STI.2148.100	2	80-380	Aggressive	1 1/4	Yes
STS5117210	STS.5117.210	1	20-100	Mineral	3/4	No
STS5217210	STS.5217.210	2	80-380	Mineral	1 1/4	No

icountPDR

Robust Online Particle Detector

Customer Value Proposition

The icountPDR Robust Particle Detector from Parker represents the most up to date technology in particle detection. The design dynamics, attention to detail and moulding compactness of the permanently mounted, on-line particle detector module, combined with on-board, laser based, leading-edge technology, brings to all industries a truly revolutionary, particle detector as a remarkable cost effective market solution to fluid management and contamination control.

icountPDR for mineral oil applications

Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

Product Features:

- Independent monitoring of system contamination trends.
- Rugged design ensures protection against environmental exposure.
- Small and compact device constructed in SS.
- Moisture %RH indicator (optional).
- Cost effective solution to prolong fluid life and reduce machine downtime.
- Continuous performance for prolonged analysis.
- Fuel, Hydraulic and phosphate Ester fluid compatible construction.
- Self diagnostic software.
- Full PC/PLC integration technology such as:- RS232 and 0-5Volt, 4-20mA, CAN(J1939) (Contact Parker for other options).
- Set up and Data logging support software included.

icountPDR

Robust Online Particle Detector

Feature	Specification
Product start-up time	5 seconds minimum
Measurement Period	5 to 180 seconds
Reporting interval	0 to 3600 seconds via RS232 communication
Principle of operation	Laser diode optical detection of actual particulates
International Codes	ISO 7 – 22, NAS 0 – 12
Calibration	By recognised online methods confirmed by the relevant ISO procedures: **MTD** – Via a certified primary ISO 11171 automatic particle detector using ISO 11943 principles, with particle distribution reporting to ISO 4406:1996
Recalibration	Contact Parker Hannifin
Working pressure	2 to 420 bar (30-6000 PSI)
Flow Range through the icountPDR	**Note:** Flow may be bi-directional 40 to 140 ml/min (Optimum Flow 60ml/min) (0.01 – 0.04 USGPM (optimum flow 0.016 USGPM))
Online Flow Range via System 20 Sensors	Size 0 = 6 to 25 l/min (2-7 USGPM) Size 1 = 24 to 100 l/min (6-26 USGPM) Size 2 = 170 to 380 l/min (45-100 USGPM)
Ambient storage temperature	-40°C to +80°C (-40°F to +176°F)
Environment operating temperature	-30°C to +60°C (-22°F to +140°F)
Fluid operating temperature	+5°C to +80°C (+41°F to +176°F)
Computer Compability	Parker recommends the use of a 9-way D-type connector. This can be connected to a USB port using a USB-serial adaptor. Note that these connectors/adaptors are **NOT** supplied with icountPDR units: contact Parker Hannifin for advice.
Moisture sensor calibration	±5% RH (over compensated temperature range of +10°C to +80°C; (+50°F to +176°F)
Operating humidity range	5% RH to 100% RH
Moisture sensor stability	±0.2% RH typical at 50% RH in one year
Power Requirement	Regulated 9 to 40Vdc
Current Rating	Typically 120mA
Certification	IP69K rating. EC Declaration of Conformity

Analogue output options (specified when ordering)

Variable current	4–20mA
Variable voltage	0–5Vdc, 0–3Vdc (user selectable)
CAN-bus	to SAE J1939 (e.g. Parker IQAN)
Moisture sensor	Linear scale within the range 5% RH to 100% RH

Flow control

LOW TO MEDIUM VISCOSITY FLOW CONTROL OPTION

A pressure compensated, flow control device (Parker Hannifin part number ACC6NN023) has been developed to give the icountPDR user greater flexibility. The flow control device enables testing where flow ranges are outside the icountPDR specifications (i.e. 40–140 ml/min), or where pipe diameters do not allow the icountPDR to be installed.

The flow control device fits onto the downstream (outlet) side of the icountPDR. A 06L EO 24deg cone end hydraulic adaptor is supplied which enables connection directly to the icountPDR. Alternatively the flow control device can be fitted further down stream.

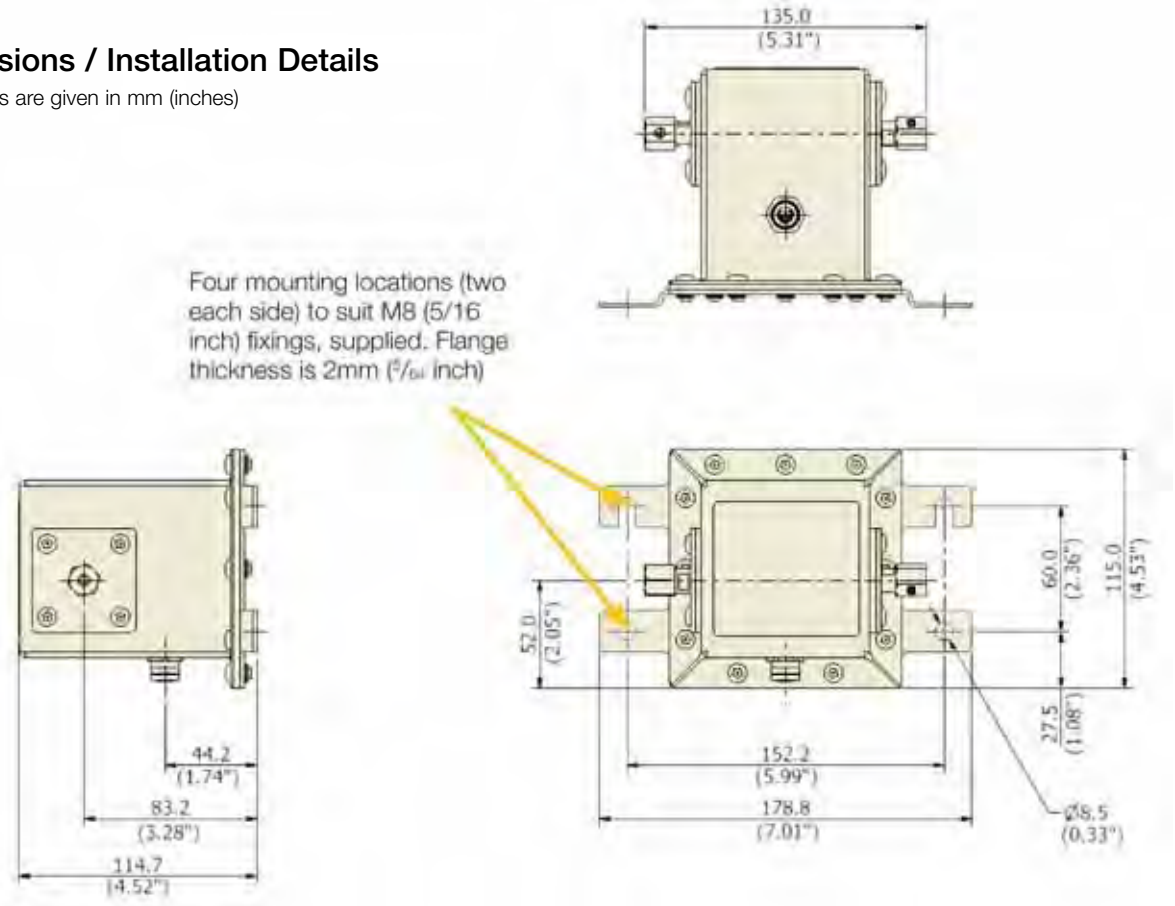
The compact design requires no setting up or further user intervention as long as the system conditions remain within the recommended pressure and viscosity ranges as below.

Working pressure range	10 to 300bar
Differential pressure range	10 to 300bar
Working viscosity range	10 to 150 Cst

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

Dimensions / Installation Details

Dimensions are given in mm (inches)



Typical Applications

- **Mobile Equipment**
  - o Earth Moving Machinery
  - o Harvesting
  - o Forestry
  - o Agriculture

Monitoring of the hydraulics, enabling the vehicles to function to their best capability under load conditions through pistons, servo valves, control rams and gear pumps.

- **Industrial Equipment**
  - o Production Plants
  - o Fluid Transfers
  - o Pulp & Paper
  - o Refineries

To monitor the cleanliness of the equipment throughout the production line, from the machine tool controlled hydraulics through to contamination of fluid transfer. Ensuring the integrity of the fluid is maintained throughout the refining process.

- **Power Generation**
  - o Wind Turbines
  - o Gearboxes
  - o Lubrication Systems

With continuous monitoring the optimum level is achieved in the least amount of time.

- **Maintenance**
  - o Test Rigs
  - o Flushing Stands

To increase efficiency of your equipment by continuously monitoring the cleanliness level of the hydraulic fluid.

- **Fuel Contamination Detection**
  - o Fuel Storage Tanks
  - o Vehicle fuel tanks
  - o Uploading fuel into an aircraft

24/7 detection of particulate levels in most fuels including aviation fuel - Jet A-1 fuel specification.

icountPDR

Robust Online Particle Detector

Connections

Variable current output settings

See page 402 (icountPD) for tables and graphs that can be used to relate an analogue output (in mA) to an ISO and NAS code.

Variable voltage output settings

See page 402 (icountPD) for tables that can be used to relate the analogue output to an ISO and NAS code.

Ordering Information

Product Configurator

Key	Fluid type		Calibration		Display		Limit Relay		Communication		Moisture sensor		Cable connector kit	
IPDR	**1**	**Mineral**	**2**	**MTD**	**1**	**None**	**1**	**No**	**2**	**RS232 / 4-20mA**	**1**	**No**	**40**	**M12, 12 pin plug connector**
	3	**Aviation fuel (4 channel)**							**3**	**RS232 / 0-5V**	**2**	**Yes**	**10**	**Deutsch 12-pin DT series connector**
									5	**RS232/CAN-bus**				

IPDR Options (Non-configurable. Planned as a future option. Consult Parker Filtration.)

Key	Fluid type		Calibration		Display		Limit Relay		Communication		Moisture sensor	Cable connector kit	
IPDR	2	Phosphate ester	1	ACFTD	2	LED	2	Relay	4	RS232 / RS485		00	No
			3	AS4059	3	Digital						40	M12, 8 pin plug connector
			4	GOST	4	GSM							

Standard Products Table

Part number	Fluid type	Calibration	Display	Limit relay	Communication	Moisture	Cable connector kit
IPDR12112140	Mineral	MTD	None	No	RS232 / 4 - 20mA	No	M12, 12 pin plug connector
IPDR12112240	Mineral	MTD	None	No	RS232 / 4 - 20mA	Yes	M12, 12 pin plug connector
IPDR12113140	Mineral	MTD	None	No	RS232 / 0 - 5V	No	M12, 12 pin plug connector
IPDR12113240	Minera	MTD	None	No	RS232 / 0 - 5V	Yes	M12, 12 pin plug connector

Accessories

Part number		Description
Mineral fluids	**Aggressive fluids**	
ACC6NE003	ACC6NN002	1 metre hose length
ACC6NN003	ACC6NN004	2 metre hose length
ACC6NN005	ACC6NN006	5 metre hose length
ACC6NN007	ACC6NN008	1/4" BSP fitting
ACC6NN009	ACC6NN010	1/8" BSP fitting
ACCNN011	ACC6NN012	1/8" BNPT fitting
SPS2021	SPS2061	Single point sampler
S840074	Contact Parker	Flow control device
ACC6NN023	Contact Parker	Flow control valve
ACC6NN013		12 volt regulated power supply
ACC6NN014	Contact Parker	2 x 5 metre M12 - 8 pin cable kit*
ACC6NN016		Deutsch Connector Kit
ACC6NN017		RS232 To USB cable kit
ACC6NN018		M12 - 8 pin to RS232 engineers tool

Early Warning

icount Lubrication and Hydraulic Oil Monitoring system

An all-in-one particle detection system

Developed around the proven Parker icountPD particle detector

Particle detection is the best known way to determine whether oil is contaminated or not and the best way to detect particles online or offline is by using Parker's icountPD. To make results even easier to obtain we added some extra equipment.

Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

Product Features:

Wind turbines
- Gear boxes
- Hydraulic systems in pitch, yaw and brake

Shipping and shipbuilding industry
- Propulsion systems
- Thrusters
- Deck machinery

Steel and pulp & paper industry
- Lubrication oil systems
- Hydraulic system control of presses and winders

Power generation
- Lubrication oil systems
- Hydraulic system control for fuel feeding

Proactive maintenance with icount

With the icount System, the early bird stands every chance of catching the worm.

Be that early bird and schedule oil changes through predictive maintenance of the system and plan service times. Parker's icount system provides early warning of any unwanted changes in hydraulic or lubrication oil quality. Thus increasing the availability of the machinery by reducing the need for unnecessary downtime.

Insurance companies are able to lower fees as the icount System warns of possible component failure. It also reduces the warranty costs thanks to an integrated pump unit that enables a cost effective solution to monitor oil from different points of a system.

icount SYSTEM		
	Standard	**Options**
Electric motor	230VAC	110VAC, 24 VDC
Pump	X	
Flow control unit	X	
Pressure control valve		for pressurized systems
Particle detector	icountPD	
Local display	led	none, digital, GSM
Communications	RS232	RS232/4-20mA, RS232/ 0-5V, RS232/Canbus
Moisture sensor		X
Limit Relay		X
Cable connector kit	M12 - 8 pin	
Short start module		X
Mounting	bracket	sealed box

Parker's icount System housing can include several options to guarantee uniform sample handling and measuring any required aspect of oil quality.

You can trust icount accuracy

Parker icount Lubrication and Hydraulic Oil Monitoring System is available today. It features Parker's laser technology and all necessary components for reliable monitoring up to 1000 cSt oil viscosities. The unit allows system monitoring and accurate particle detection from any available source.

A moisture sensor as an option to measure the relative humidity of the oil and other add-on sensors like viscosity measurement are also available.

Several power versions for easy installation and worldwide operation are available. The system is capable of data transmission in multiple forms and central control can collect information and manage easily for example large marine wind farms off shore and on land.

A special design for wind turbine applications with pressurized connection is available. Correct oil pressure and steady flow ensure consistent measuring.

icountPD

For more information contact Parker.

The icountPD Particle Detector from Parker represents the most up to date laser based technology in particle detection. Standard in every icount Monitoring System.

icountMS Range

Fluid Condition Monitoring – Moisture Sensors

An essential component of any predictive maintenance programme

Fast, reliable and accurate inline detection of moisture in fluids

MS moisture sensors provide fast, reliable and accurate inline detection of moisture in fluids. Technology developed for preventative maintenance programmes. MS150 is the 'low pressure' option for suction line/reservoir applications. MS200 is the 'Programmable' sensor monitoring and reporting relative humidity (RH), moisture content in oils. MS300 'Intrinsically safe' sensor ATEX certified for use in hazardous Zone 0 environments.

Product Features:

- MS moisture sensors provide fast, reliable and accurate inline detection of moisture in fluids.
- Technology developed for preventative maintenance programmes.
- MS150 'low pressure' suction/Return line applications. 10 bar maximum operating pressure.
- MS200 'Programmable' sensor monitoring and reporting relative humidity (RH), moisture content in oils. 420 bar MAOP.
- MS300 'Intrinsically safe' sensor ATEX certificated for use in hazardous Zone 0 environments. 420 bar MAOP.
- Temperature Outputs on all versions.

Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

icountMS Range

Cost Effective Moisture Detection

Features & Benefits

- Continuous, online moisture indication, for hydraulic and lubricating systems.
- Reporting of % relative humidity of water content, giving the user information on how close to the fluids real saturation point.
- Reliable data on the rate of water absorption.
- Sensing cell technology using a laser trimmed thermoset polymer, for capacitive sensing that is capable of absorbing water molecules due to its micro porous structure.
- Uses a thermistor for temperature compensation correction. Offering total confidence in reporting the %RH relative humidity over the sensors temperature range.
- A purpose designed tee adaptor allows for easy installation into an existing fluid system.
- The MS200 can also be specified with a bench top wand offering the end user greater flexibility.
- Not available on MS150

Typical Applications

- Ground support vehicles
- Pulp and paper plants
- Marine hydraulics
- Power transmission & distribution
- Forestry
- Industrial hydraulics
- Earth moving applications
- Agricultural
- Hazardous Areas (Zone 2)
- Theme parks (Ride hydraulics)

In-Line Moisture Measurement of Hydraulic & Lubricating Oils.

Parkers Moisture Sensor Range offers fast, reliable and accurate in-line detection of moisture in fluids. The MS transducer type technology has been especially designed with the preventative maintenance programme environment in mind.

The industry accepted sensing cell device will monitor and report Relative Humidity (RH), moisture content in oils. The water content measurement technique offers the end user benefits over the current standard form of water content reporting (PPM).

This allows for real time preventative maintenance to be undertaken and corrective actions to be made. By knowing that the water contamination is still within the oils absorbing range, less than 100%, reclaiming fluid properties before additive damage occurs can initiate calculable cost savings.

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

MS150 Moisture Sensor

Specification

Pressure:
Maximum allowable operating pressure. (MAOP): 10 bar (145 PSI).

Operating temperature:
Minimum: -20°C (-4°F).
Maximum: +85°C (+185°F).

Flow through sensor cell:
Installed in active flowstream.

Fluid compatibility:
Mineral oils.
Petroleum-based fluids.

Viscosity range:
Unlimited.

Port connections:
1/4" BSPT or 1/4" NPT.

Supply voltage:
+8 to +30 Vdc.

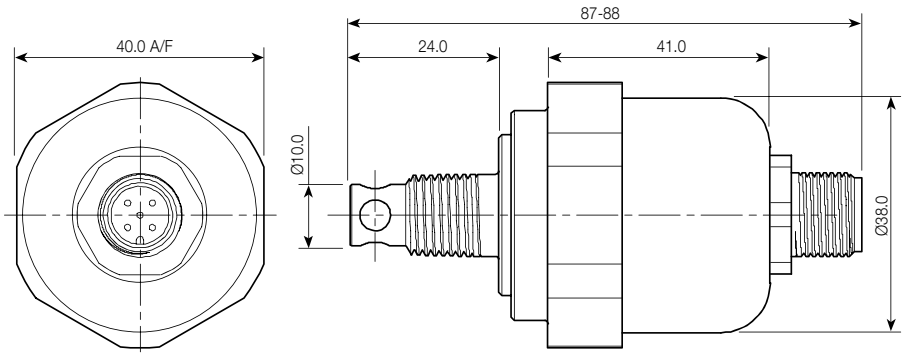
Sensor size/weight/material:
80mm x 43mm/0.1kg/Aluminium

IP ratings:
IP68

%RH Outputs:
(+1 to +5 Vdc) or (4 to 20mA)

Temperature Outputs:
0 to +5 Vdc

Installation Details

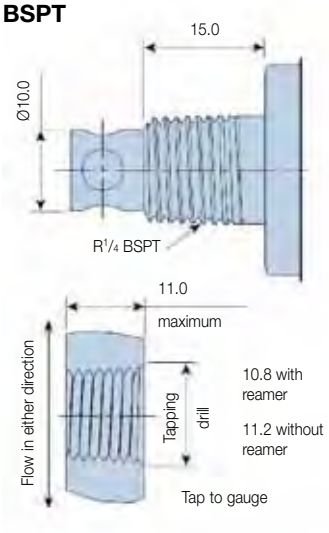


All dimensions in millimetres (mm)

Dimensions are for reference only

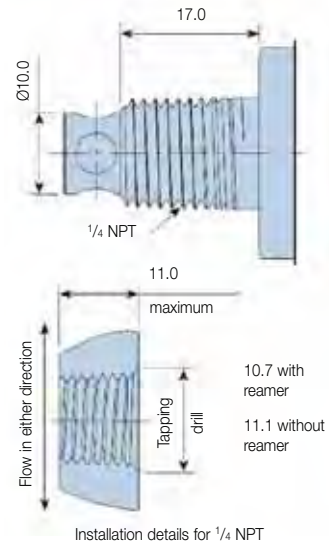
Thread Form Options

BSPT



Installation details for R1/4 BSPT taper

NPT



Installation details for 1/4 NPT

Sensor Outputs

MS150 moisture sensor pin designations			
Pin	**Designation**	**I/O**	**Description**
1	Supply	Input	Supply voltage (+8 to +30Vdc)
2	%RH	Output	% Saturation out (+1 to +5Vdc)
3	%RH	Output	% Saturation out (+4 to +20mA)
4	Temperature	Output	Temperature out (0 to +5Vdc)
5	Common	Input	Common (0Vdc) ground from power supply (not chassis ground)

Interpreting the data

Oil type: Texaco Rando 46.
Saturation point: 400ppm @ 65ºC (150ºF).
At the above operating condition, the meter displays 100% saturation. As the meters scale indicates a reduction in the saturation percentage, there is also a corresponding reduction in PPM at a constant temperature. In the example above, a meter reading of 50% saturation could be interpreted as 200ppm at 65ºC (150ºF).

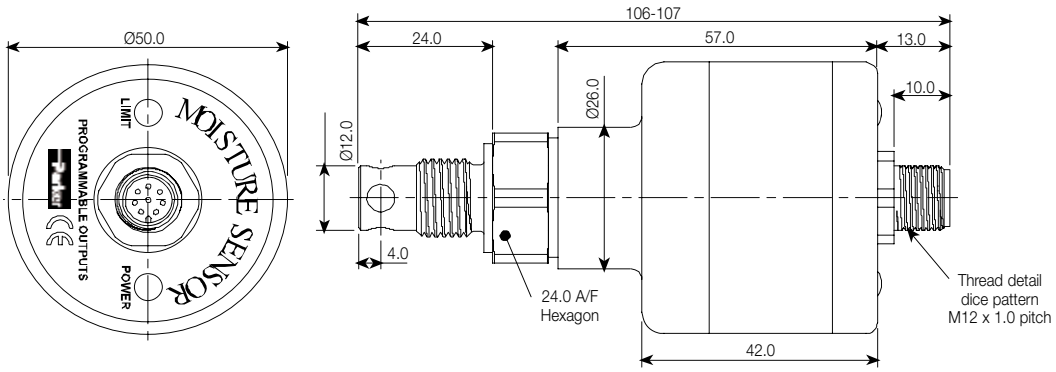
MS200 'Programmable'

Specification

% Saturation Calibration Accuracy:	+3% RH
Temperature Calibration Accuracy:	±1°C
Thermal Stability:	±1% RH (over compensated temperature range +10 to +80°C)
Stability:	±0.2% RH typical at 50% RH in 1 year
Linearity:	±0.5% RH typical
Analogue Output Hysteresis:	±0.5% RH Full Scale
Switched Output Hysteresis:	2% RH
Operating Temperature Range:	-40°C to +85°C (-40 to +185°F)
Operating Humidity Range:	5 to 100% RH (non condensing)
Response Time:	60 sec in slow moving air at 25°C
Maximum rated pressure:	420 Bar (6000 PSI)
Maximum torque on spanner flats:	30 Nm (ONLY USE SPANNER FLATS TO INSTALL ANDREMOVE THE MOISTURE SENSOR)
Seal Material (depending on MS):	Fluorocarbon, EPDM, Perfluoroelastomer
Material:	Stainless Steel 303
Connector Details:	M12x1, 8 Way, IP67 Connector (IP68 when mated with moulded cable)
Maximum Cable Length:	10 Metres with Voltage Output 100 Metres with Current Output
Output:	SEE ORDERING INFORMATION

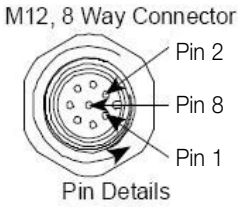
Installation Details

All dimensions in millimetres (mm)
Dimensions are for reference only



Moisture Sensor Wiring and Pin Designations

Pin	Wire Colour	Designation	I/O	Description
1	Brown	Analogue	Output	Temperature - Degí Celsius. User Select Output (0-3Vdc, 0-5Vdc, 1-6Vdc and 4-20mA).
2	Green	Alarm Limit	Output	Alarm Limit. Output that directly corresponds to the alarm set point.
3	Yellow	Analogue	Output	% Saturation. User Select Output (0-3Vdc, 0-5Vdc, 1-6Vdc and 4-20mA).
4	Grey	Receive	Input	RS232 Communication.
5	Pink	Send	Output	RS232 Communication.
6	Blue	Common	Input	Common (0Vdc). Ground from power supply.
7	White	Alarm Switch	Output	Alarm Switch. Constant 5Vdc when in normal operation. Switch to 0Vdc when in alarm condition. Red LED illuminates when Sensor is in an alarm condition.
8	Red	Supply	Input	Supply Voltage (+8 to +30Vdc). Green LED illuminates when power is properly applied.



Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.

MS300 Intrinsically Safe

Specification

Pressure:
Maximum allowable operating pressure.
(MAOP): 420 bar (6000 PSI).

Operating temperature:
Minimum: -40°C (-40°F) - dependent on seal material.
Maximum: +85°C (+185°F).

Flow through sensor cell:
Installed in active flowstream.

Fluid compatibility:
Mineral oils, petroleum-based and Phosphate ester-Skydrol option available.

Viscosity range:
Unlimited.

Thread form connections:
See ordering information.

Outputs:
4-20mA (current loop).

Calibration accuracy:
+/- 5% RH

Compensated thermal stability:
+/- 1% RH (+ 10°C to +80°C)

Materials:
Stainless steel 303.

Sensor size/weight:
107mm x ø50mm/0.3Kg.

IP ratings:
IP68 (with specified moulded cable)

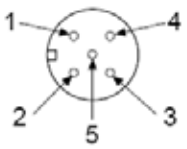
Developed in association with Triteq Ltd.

Installation Details - See MS200

Ex II 1G
Ga Ex ia IIB T4
CE 0518
Sira 07ATEX2255
IECEx SIR 07.0089

Moisture Sensor Connection Diagram

1. Supply (4-20 mA - IN)	- Brown
2. Signal (4-20 mA - OUT)	- White
3. Not Used	- Blue
4. Not Used	- Black
5. Not Used	- Grey



The MS300 has been certified as Intrinsically Safe Electrical Apparatus and offers fast, reliable and accurate in-line detection of moisture in fluids for use in hazardous areas.

ATEX Certification allows the MS300 into areas of a potentially explosive atmosphere, that have previously not been allowed without permits, it is intended for use in Zone 0 hazardous areas requiring the use of category 1G equipment and has been designed for use with galvanic isolators to the specified values stated below:

The electrical parameters: Ui: 28V Ii: 93mA Pi:0.65W Ci: 380nF Li: 0

The following instructions apply to MS300 - 4-20mA Current Loop Moisture Sensor covered by certificate number Sira 07ATEX2255:

1. The equipment may be located where flammable gases of Group I may be present. The equipment is only certified for use in ambient temperatures in the range -20°C to +40°C and should not be used outside this range.

2. The equipment has not been assessed as a safety-related device (as referred to by Directive 94/9/EC Annex II, clause 1.5).

3. Installation of this equipment shall be carried out by suitably trained personnel in accordance with the applicable code of practice.

4. Repair of this equipment shall be carried out by the manufacturer or in accordance with the applicable code of practice (IEC 60079-19).

Visual Indicators Specifications

Bar Graph Indicator (PBG8341A)

Construction:
Housing – nylon 6/6, window – acrylic,
bezel/board supports – ABS,
pins – phosphor bronze.

Power supply:
11 – 30 Vdc.

Signal input: (By dipswitch configuration)
Off – differential up to 5V.
A – single signal (Ref. 0V) up to 5V.
B – single signal (Ref. 1V) up to 6V.

Cut out size:
45.6mm x 45.6mm.

Fixing:
Push fit panel thickness 0.9mm to 3.2mm.

Sealing:
Designed to IP50 standard.
(Front face may be silicon sealed after LED configuration).

Scale:
Supplied 0 to 100% in horizontal.
Other scales, in volume, consult Parker Hannifin.

Scaling factors:
10% to 100% range. Fully adjustable.

Lamp intensity:
4mcd each.

Front viewing:
Polarised.

Weight:
29gms.

Alternative Indicator

Description	DDU1001	DDU1002
Power supply	11 - 30 Vdc	110 - 240 Vdc
Accuracy	± 0.1% typical	± 0.1% typical
Sample rate	2.5 per second	2.5 per second
Operating temp (°C)	0 - 50	0 - 50
Storage temp (°C)	-10 to +70	-10 to +70
Display	3.5 digit LED	3½ digit LED
Power output (Vdc)	24	24
Weight (kg)	0.30	0.30
Panel cutout (mm)	93x45 ± 0.5	93x45 ±/0.5
Dimensions (mm)	48x96x93	48x96x93

PBG8341A

DDU1001/DDU1002

Product accessories part numbers

Product Number	Supersedes	Description
DDU1001	P.9732PVC-10	Digital display unit 22-55 Vdc
DDU1002	P.9732PVC-05	Digital display unit 110-240 Vdc
PBG8341A	PBG.8341.1A	Bar Graph Indicator (+11 to +30 Vdc)
ACC6NF000	B97200	5 meter M12, 8 pin moulded cable (IP68)
ACC6NF001	P973200	M12, 5 pin rewireable connector (IP65)
ACC6NF002	S970410	10 meter extension box
ACC6NE008	S970400	UK 12 volt power supply
ACC6NE009	S970400	European 12 volt power supply
ACC6NE010	S970400	US 12 volt power supply
ACC6NF003	N/A	5 metre M12, 5 pin moulded cable (IP68)

Moisture sensor output setting

The Moisture sensor reports on the saturation levels of the fluid passing through the sensing cell. The output is a linear scale, reporting within the range of 5% saturation to 100% saturation.

Saturation	4–20mA	0–3Vdc	0–5Vdc
5%	**4.8**	**0.15**	**0.25**
25%	**8**	**0.75**	**1.25**
50%	**12**	**1.50**	**2.50**
75%	**16**	**2.25**	**3.75**
100%	**20**	**3.00**	**5.00**

Ordering Information

MS150 - Standard Product Table

Product Number	Supersedes	Fluid type	Thread Forms	Connector
MS1503	MS150-3	Mineral + Aggressive	G 1/4" BSPT Taper	M12 5 WAY
MS1504	MS150-4	Mineral + Aggressive	1/4" NPT Taper	M12 5 WAY

MS200 - Product Configurator

Key	Model		Fluid type		Output Options		Thread Forms		Connector		Future option	
MS	**2**	Programmable	**2**	Mineral	01	0 -3 Vdc	**1**	G 1/4" BSP Bonded Seal	**2**	M12 8 WAY	**1**	No
			6	Aggressive	**02**	0 - 5 Vdc	**2**	G 1/4" BSP Integral Seal				
					03	1 - 6 Vdc	**3**	R 1/4" Taper				
					04	4 - 20 mA	**4**	1/4" NPT Taper				
							5	9/16 - 18 UNF 2A Integral Seal				
							6	Hand Held Unit				
							7	G 3/8" BSP Female Swivel Equal T adaptor				

MS200 - Standard Product Table

Key	Model	Fluid type	Output Options	Thread Forms	Connector	Future option
MS	**2**	**2**	**02**	**1**	**1**	**0**
MS	**2**	**2**	**02**	**2**	**1**	**0**
MS	**2**	**2**	**02**	**3**	**1**	**0**
MS	**2**	**2**	**02**	**4**	**1**	**0**
MS	**2**	**2**	**02**	**5**	**1**	**0**
MS	**2**	**2**	**04**	**1**	**1**	**0**
MS	**2**	**2**	**04**	**2**	**1**	**0**
MS	**2**	**2**	**04**	**3**	**1**	**0**
MS	**2**	**2**	**04**	**4**	**1**	**0**
MS	**2**	**2**	**04**	**5**	**1**	**0**

MS300 - Product Configurator

Key	Model		Fluid type		Output		Thread form		Connector		Future option	
MS	**3**	Programmable	**2**	Mineral	**04**	4 - 20 mA	**1**	G 1/4" BSP Bonded Seal	**1**	M12 5 WAY	**0**	None
			6	Aggressive			2	G 1/4" BSP Integral Seal				
							3	R 1/4" Taper Thread				
							4	1/4" NPT Taper Thread				
							5	9/16 - 18 UNF 2A Integral Seal				
							6	G 3/8" BSP Female Swivel Equal Tee				

MS300 - Standard Product Table

Key	Model	Fluid type	Output	Thread Forms	Connector	Future option
MS	**3**	**2**	**04**	**1**	**1**	**1**
MS	**3**	**2**	**04**	**2**	**1**	**1**
MS	**3**	**2**	**04**	**3**	**1**	**1**
MS	**3**	**2**	**04**	**4**	**1**	**1**
MS	**3**	**2**	**04**	**5**	**1**	**1**

Oilcheck

Hand-held Oil Condition Monitor

Portable and battery powered for 'go-anywhere' monitoring

Hand-held condition monitor provides a visual comparison between new and used oils

Parker's Oilcheck is completely portable and battery powered with a numerical display that indicates positive or negative increase in dielectrics. Oilcheck gives an early warning of impending engine failure and the simplistic hand-held design makes it easy to use.

Oilcheck shown with optional rubberized sleeve.

Contact Information:

Parker Hannifin
Hydraulic Filter Division Europe

European Product Information Centre
Freephone: 00800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IT, PT, SE, SK, UK)
filtrationinfo@parker.com

www.parker.com/hfde

Product Features:

- Oilcheck hand-held condition monitor provides a visual comparison between new and used oils.
- The Oilcheck, once calibrated with clean oil, will store the calibration units memory when the unit is switched off, until such time that a re-calibration is required by the user.
- Completely portable and battery powered.
- Numerical display shows positive or negative increase in dielectrics.
- Gives early warning of impending engine failure.
- Optional protective rubberized sleeve.

Oilcheck

Hand-held Oil Condition Monitor

Features & Benefits

- A comparator between new and used oils.
- Oilcheck gives early warning of impending engine failure.
- Cost effective solution to save money and help increase engine life.
- Completely portable, battery powered.
- Ideal for fleet owners, garages and DIY mechanics.
- Numerical display to show positive or negative increase in dielectrics.

Using Oilcheck

Following the simple sampling procedure. Parker's Oilcheck will ensure effective and highly repeatable results. Once a clean oil sample has been placed in the 'Sensor Well' and the 'TEST' button has been pressed, the instrument will 'zero' on the sample.

Once cleaned out with a degreaser and replaced by a contaminated sample, a new reading is obtained on the LCD, which can be easily compared against the green/amber/red efficiency scale.

Typical Applications

- Fleet owners
- Construction equipment maintenance
- Vehicle service garages
- Plant hire maintenance

The Oilcheck from Parker Filtration's Condition Monitoring Centre detects and measures the dielectric constant of oil, by comparing the measurements obtained from used and unused oils of the same brand.

Used as a regular service monitoring instrument, the Oilcheck will give the engineer warning of an impending engine failure and promote increased engine life. Oilcheck is the low-cost solution that will take the guesswork out of oil changes, saving money and time.

Specification

Case construction:
ABS.

Circuitry:
Microprocessor control.

Battery:
1 x 9V alkaline (supplied).

Display:
LCD.

Suitable oil types:
Mineral and synthetic based oils.

Repeatability:
Better than 5%.

Readout:
Green/amber/red grading, Numerical value (0-100%).

Battery lifetime:
>150 hours or 3,000 tests.

Dimensions:
250mm x 95mm x 34mm (9.8" x 3.7" x 1.3").

Weight:
0.4kg.

Memory capacity:
Remembers the last calibration.

Using Oilcheck

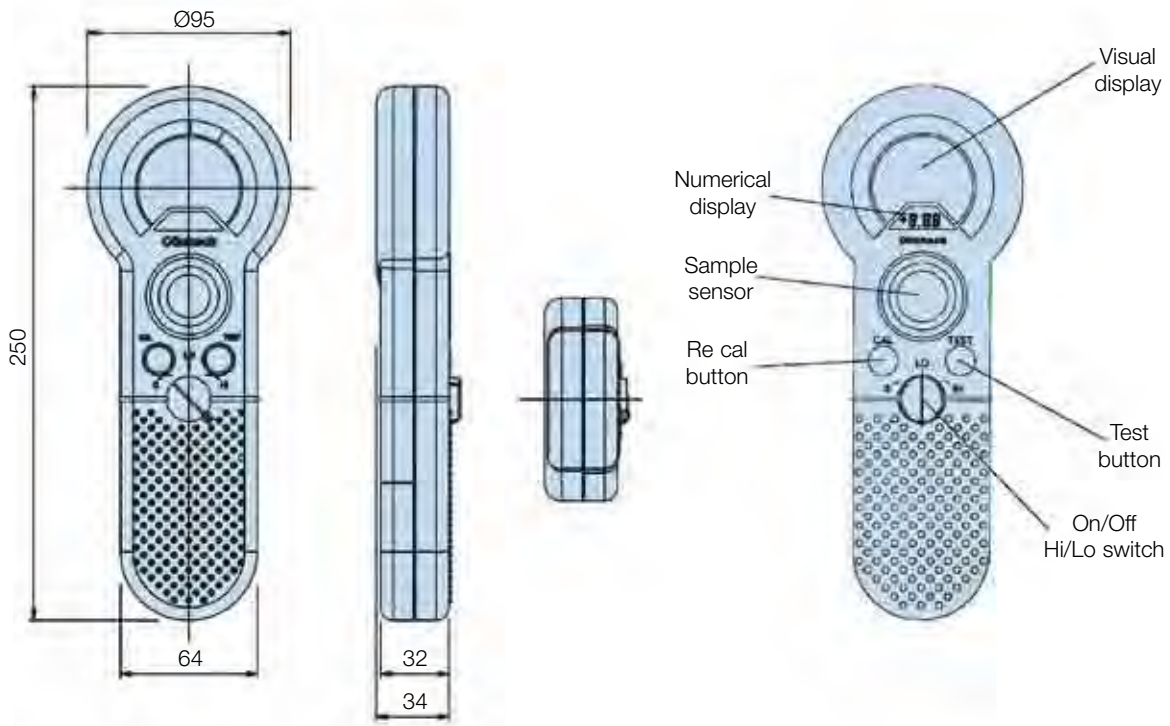
Green/amber/red numerical value

Function buttons

The Oilcheck can remove the need for costly and time consuming laboratory analysis of mineral and synthetic oils used in engines, gearboxes and bearing lubrication systems. It detects mechanical wear and any loss of lubricating properties in the oil with a repeat accuracy of less than 5%.

The Oilcheck is able to show changes in the oil condition brought about by the ingress of water content, fuel contamination, metallic content and oxidation.

Installation Details



Ordering Information

Standard products table

Product number	Description
OLK605	Oilcheck kit with numerical readout
OLK611	Oilcheck cleaner
ACC6NV001	Rubberized protective sleeve

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Parker Hannifin
Hydraulic Filter Division Europe
FDHB500UK.